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Leite, Mario W.  
Zhong, Haihong  
Alsobrook, John P.  
Lepley, Denise M.  
Rieger, Daniel K.  
Burgess, Catherine E.

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Ala Arg Ile Phe Phe Pro Thr Ala Phe Cys Leu Phe Asn Leu Val Tyr			
455	460	465	
tgg gtc tcc tac ctc tac ctg tgaggaggta tgggttttac tgatatggtt			1498
Trp Val Ser Tyr Leu Tyr Leu			
470	475		
cttattcact gagtctcatg gag			1521

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<211>475

<212>PRT

<213> Homo sapiens

<400>6

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Leu Tyr Pro Gly Phe Thr Ser Gln Lys Ser Asp Asp Asp Tyr Glu Asp
35 40 45

Tyr Ala Ser Asn Lys Thr Trp Val Leu Thr Pro Lys Val Pro Glu Gly
50 55 60

Asp Val Thr Val Ile Leu Asn Asn Leu Leu Glu Gly Tyr Asp Asn Lys
65 70 75 80

Leu Arg Pro Asp Ile Gly Val Lys Pro Thr Leu Ile His Thr Asp Met
85 90 95

Tyr Val Asn Ser Ile Gly Pro Val Asn Ala Ile Asn Met Glu Tyr Thr
100 105 110

Ile Asp Ile Phe Phe Ala Gln Thr Trp Tyr Asp Arg Arg Leu Lys Phe  
 115 120 125  
 Asn Ser Thr Ile Lys Val Leu Arg Leu Asn Ser Asn Met Val Gly Lys  
 130 135 140  
 Ile Trp Ile Pro Asp Thr Phe Phe Arg Asn Ser Lys Lys Ala Asp Ala  
 145 150 155 160  
 His Trp Ile Thr Thr Pro Asn Arg Met Leu Arg Ile Trp Asn Asp Gly  
 165 170 175  
 Arg Val Leu Tyr Thr Leu Arg Leu Thr Ile Asp Ala Glu Cys Gln Leu  
 180 185 190  
 Gln Leu His Asn Phe Pro Met Asp Glu His Ser Cys Pro Leu Glu Phe  
 195 200 205  
 Ser Ser Tyr Gly Tyr Pro Arg Glu Glu Ile Val Tyr Gln Trp Lys Arg  
 210 215 220  
 Ser Ser Val Glu Val Gly Asp Thr Arg Ser Trp Arg Leu Tyr Gln Phe  
 225 230 235 240  
 Ser Phe Val Gly Leu Arg Asn Thr Thr Glu Val Val Lys Thr Thr Ser  
 245 250 255  
 Gly Asp Tyr Val Val Met Ser Val Tyr Phe Asp Leu Ser Arg Arg Met  
 260 265 270  
 Gly Tyr Phe Thr Ile Gln Thr Tyr Ile Pro Cys Thr Leu Ile Val Val  
 275 280 285  
 Leu Ser Trp Val Ser Phe Trp Ile Asn Lys Asp Ala Val Pro Ala Arg  
 290 295 300  
 Thr Ser Leu Gly Ile Thr Thr Val Leu Thr Met Thr Thr Leu Ser Thr  
 305 310 315 320  
 Ile Ala Arg Lys Ser Leu Pro Lys Val Ser Tyr Val Thr Ala Met Asp  
 325 330 335  
 Leu Phe Val Ser Val Cys Phe Ile Phe Val Phe Ser Ala Leu Val Glu  
 340 345 350  
 Tyr Gly Thr Leu His Tyr Phe Val Ser Asn Arg Lys Pro Ser Lys Asp  
 355 360 365  
 Lys Asp Lys Lys Lys Lys Asn Pro Leu Leu Arg Met Phe Ser Phe Lys  
 370 375 380  
 Ala Pro Thr Ile Asp Ile Arg Pro Arg Ser Ala Thr Ile Gln Met Asn  
 385 390 395 400  
 Asn Ala Thr His Leu Gln Glu Arg Asp Glu Glu Tyr Gly Tyr Glu Cys  
 405 410 415

Leu Asp Gly Lys Asp Cys Ala Ser Phe Phe Cys Cys Phe Glu Asp Cys  
420 425 430

Arg Thr Gly Ala Trp Arg His Gly Arg Ile His Ile Arg Ile Ala Lys  
435 440 445

Met Asp Ser Tyr Ala Arg Ile Phe Phe Pro Thr Ala Phe Cys Leu Phe  
450 455 460

Asn Leu Val Tyr Trp Val Ser Tyr Leu Tyr Leu  
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<210>7

<211>1455

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(31)..(1426)

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ctc ttc tcc cct ttt ctt ctg cgg agt caa agt aga ggg gtg agg ttg 99  
Leu Phe Ser Pro Phe Leu Leu Arg Ser Gln Ser Arg Gly Val Arg Leu  
10 15 20

gtc ttc ttg tta ctg acc ctg cat ttg gga aac tgg gtt gat aag gca 147  
Val Phe Leu Leu Leu Thr Leu His Leu Gly Asn Trp Val Asp Lys Ala  
25 30 35

gat gat gaa gat gat gag gat tta acg gtg aac aaa acc tgg gtc ttg 195  
Asp Asp Glu Asp Asp Glu Asp Leu Thr Val Asn Lys Thr Trp Val Leu  
40 45 50 55

gcc cca aaa att cat gaa gga gat atc aca caa att ctg aat tca ttg 243  
Ala Pro Lys Ile His Glu Gly Asp Ile Thr Gln Ile Leu Asn Ser Leu  
60 65 70

ctt caa ggc tat gac aat aaa ctt cgt cca gat ata gga gtg agg ccc 291  
Leu Gln Gly Tyr Asp Asn Lys Leu Arg Pro Asp Ile Gly Val Arg Pro  
75 80 85

aca gta att gaa act gat gtt tat gta aac agc att gga cca gtt gat 339  
Thr Val Ile Glu Thr Asp Val Tyr Val Asn Ser Ile Gly Pro Val Asp  
90 95 100

cca att aat atg gaa tat aca ata gat ata att ttt gcc caa acc tgg 387  
Pro Ile Asn Met Glu Tyr Thr Ile Asp Ile Ile Phe Ala Gln Thr Trp  
105 110 115

ttt gac agt cgt tta aaa ttc aat agt acc atg aaa gtg ctt atg ctt 435  
Phe Asp Ser Arg Leu Lys Phe Asn Ser Thr Met Lys Val Leu Met Leu  
120 125 130 135

aac agt aat atg gtt gga aaa att tgg att cct gac act ttc ttc aga	483
Asn Ser Asn Met Val Gly Lys Ile Trp Ile Pro Asp Thr Phe Phe Arg	
140 145 150	
aac tca aga aaa tct gat gct cac tgg ata aca act cct aat cgt ctg	531
Asn Ser Arg Lys Ser Asp Ala His Trp Ile Thr Thr Pro Asn Arg Leu	
155 160 165	
ctt cga att tgg aat gat gga cga gtt ctg tat act cta agg ttg aca	579
Leu Arg Ile Trp Asn Asp Gly Arg Val Leu Tyr Thr Leu Arg Leu Thr	
170 175 180	
att aat gca gaa tgt tat ctt cag ctt cat aac ttt ccc atg gat gaa	627
Ile Asn Ala Glu Cys Tyr Leu Gln Leu His Asn Phe Pro Met Asp Glu	
185 190 195	
cat tcc tgt cca ctg gaa ttt tca agc gat gga tac cct aaa aat gaa	675
His Ser Cys Pro Leu Glu Phe Ser Ser Asp Gly Tyr Pro Lys Asn Glu	
200 205 210 215	
att gag tat aag tgg aaa aag ccc tcc gta gaa gtg gct gat cct aaa	723
Ile Glu Tyr Lys Trp Lys Lys Pro Ser Val Glu Val Ala Asp Pro Lys	
220 225 230	
tac tgg aga tta tat cag ttt gca ttt gta ggg tta cgg aac tca act	771
Tyr Trp Arg Leu Tyr Gln Phe Ala Phe Val Gly Leu Arg Asn Ser Thr	
235 240 245	
gaa atc act cac acg atc tct ggt gat tat gtt atc atg aca att ttt	819
Glu Ile Thr His Thr Ile Ser Gly Asp Tyr Val Ile Met Thr Ile Phe	
250 255 260	
ttt gac ctg agc aga aga atg gga tat ttc act att cag acc tac att	867
Phe Asp Leu Ser Arg Arg Met Gly Tyr Phe Thr Ile Gln Thr Tyr Ile	
265 270 275	
cca tgc att ctg aca gtt gtt ctt tct tgg gtg tct ttt tgg atc aat	915
Pro Cys Ile Leu Thr Val Val Leu Ser Trp Val Ser Phe Trp Ile Asn	
280 285 290 295	
aaa gat gca gtg cct gca aga aca tcg ttg ggt atc act aca gtt ctg	963
Lys Asp Ala Val Pro Ala Arg Thr Ser Leu Gly Ile Thr Thr Val Leu	
300 305 310	
act atg aca acc ctg agt aca att gcc agg aag tct tta cct aag gtt	1011
Thr Met Thr Thr Leu Ser Thr Ile Ala Arg Lys Ser Leu Pro Lys Val	
315 320 325	
tct tat gtg act gcg atg gat ctc ttt gtt tct gtt tgt ttc att ttt	1059
Ser Tyr Val Thr Ala Met Asp Leu Phe Val Ser Val Cys Phe Ile Phe	
330 335 340	
gtt ttt gca gcc ttg atg gaa tat gga acc ttg cat tat ttt acc agc	1107
Val Phe Ala Ala Leu Met Glu Tyr Gly Thr Leu His Tyr Phe Thr Ser	
345 350 355	
aac caa aaa gga aag act gct act aaa gac aga aag cta aaa aat aaa	1155

Asn Gln Lys Gly Lys Thr Ala Thr Lys Asp Arg Lys Leu Lys Asn Lys  
 360 365 370 375  
 gcc tgc gta act cct ggt ctc cat cct gga tcc act ctg att cca atg 1203  
 Ala Ser Val Thr Pro Gly Leu His Pro Gly Ser Thr Leu Ile Pro Met  
 380 385 390  
 aat aat att tct gtg ccg caa gaa gat gat tat ggg tat cag tgt ttg 1251  
 Asn Asn Ile Ser Val Pro Gln Glu Asp Asp Tyr Gly Tyr Gln Cys Leu  
 395 400 405  
 gag ggc aaa gat tgt gcc agc ttc ttc tgt tgc ttt gaa gac tgc aga 1299  
 Glu Gly Lys Asp Cys Ala Ser Phe Phe Cys Cys Phe Glu Asp Cys Arg  
 410 415 420  
 aca gga tct tgg agg gaa gga agg ata cac ata cgc att gcc aaa att 1347  
 Thr Gly Ser Trp Arg Glu Gly Arg Ile His Ile Arg Ile Ala Lys Ile  
 425 430 435  
 gac tct tat tct aga ata ttt ttc cca acc gct ttt gcc ctg ttc aac 1395  
 Asp Ser Tyr Ser Arg Ile Phe Phe Pro Thr Ala Phe Ala Leu Phe Asn  
 440 445 450 455  
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<211>465

<212>PRT

<213> Homo sapiens

<400>8

Met Gly Pro Leu Lys Ala Phe Leu Phe Ser Pro Phe Leu Leu Arg Ser  
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Gln Ser Arg Gly Val Arg Leu Val Phe Leu Leu Leu Thr Leu His Leu  
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Gly Asn Trp Val Asp Lys Ala Asp Asp Glu Asp Asp Glu Asp Leu Thr  
 35 40 45

Val Asn Lys Thr Trp Val Leu Ala Pro Lys Ile His Glu Gly Asp Ile  
 50 55 60

Thr Gln Ile Leu Asn Ser Leu Leu Gln Gly Tyr Asp Asn Lys Leu Arg  
 65 70 75 80

Pro Asp Ile Gly Val Arg Pro Thr Val Ile Glu Thr Asp Val Tyr Val  
 85 90 95

Asn Ser Ile Gly Pro Val Asp Pro Ile Asn Met Glu Tyr Thr Ile Asp  
 100 105 110





Cys Cys Phe Glu Asp Cys Arg Thr Gly Ser Trp Arg Glu Gly Arg Ile  
420 425 430

His Ile Arg Ile Ala Lys Ile Asp Ser Tyr Ser Arg Ile Phe Phe Pro  
435 440 445

Thr Ala Phe Ala Leu Phe Asn Leu Val Tyr Trp Val Gly Tyr Leu Tyr  
450 455 460

Leu  
465

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<211>1440

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<222>(7) .. (1435)

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atc ata ttg aaa cca aat gtt tgt gct gct tct aac atc aag atg aca 96  
Ile Ile Leu Lys Pro Asn Val Cys Ala Ala Ser Asn Ile Lys Met Thr  
15 20 25 30

cac cag cgg tgc tcc tct tca atg aaa caa acc tgg aaa caa gaa act 144  
His Gln Arg Cys Ser Ser Ser Met Lys Gln Thr Trp Lys Gln Glu Thr  
35 40 45

aga atg aag aaa gat gac agt acc aaa gcg cgg cct cag aaa tat gag 192  
Arg Met Lys Lys Asp Asp Ser Thr Lys Ala Arg Pro Gln Lys Tyr Glu  
50 55 60

caa ctt ctc cat ata gag gac aac gat ttc gca atg aga cct gga ttt 240  
Gln Leu Leu His Ile Glu Asp Asn Asp Phe Ala Met Arg Pro Gly Phe  
65 70 75

gga ggt gag tat tat cct ctc aaa att ggg tct cca gtg cca gta ggt 288  
Gly Gly Glu Tyr Tyr Pro Leu Lys Ile Gly Ser Pro Val Pro Val Gly  
80 85 90

ata gat gtc cat gtt gaa agc att gac agc att tca gag act aac atg 336  
Ile Asp Val His Val Glu Ser Ile Asp Ser Ile Ser Glu Thr Asn Met  
95 100 105 110

gta agt ttc ttc atg gga tat gac ttt aca atg act ttt tat ctc agg 384  
Val Ser Phe Phe Met Gly Tyr Asp Phe Thr Met Thr Phe Tyr Leu Arg  
115 120 125

cat tac tgg aaa gac gag agg ctc tcc ttt cct agc aca gca aac aaa 432  
His Tyr Trp Lys Asp Glu Arg Leu Ser Phe Pro Ser Thr Ala Asn Lys  
130 135 140

agc atg aca ttt gat cat aga ttg acc aga aag atc tgg gtg cct gat	480
Ser Met Thr Phe Asp His Arg Leu Thr Arg Lys Ile Trp Val Pro Asp	
145 150 155	
atc ttt ttt gtc cac tct aaa aga tcc ttc atc cat gat aca act atg	528
Ile Phe Phe Val His Ser Lys Arg Ser Phe Ile His Asp Thr Thr Met	
160 165 170	
gag aat atc atg ctg cgc gta cac cct gat gga aac gtc ctc cta agt	576
Glu Asn Ile Met Leu Arg Val His Pro Asp Gly Asn Val Leu Leu Ser	
175 180 185 190	
ctc agg agg ata acg gtt tgc gcc atg tgc ttt atg gat ttc agc agg	624
Leu Arg Arg Ile Thr Val Ser Ala Met Cys Phe Met Asp Phe Ser Arg	
195 200 205	
ttt cct ctt gac act caa aat tgt tct ctt gaa ctg gaa agc gcc tac	672
Phe Pro Leu Asp Thr Gln Asn Cys Ser Leu Glu Leu Glu Ser Ala Tyr	
210 215 220	
aat gag gat gac cta atg cta tac tgg aaa cac gga aac aag tcc tta	720
Asn Glu Asp Asp Leu Met Leu Tyr Trp Lys His Gly Asn Lys Ser Leu	
225 230 235	
aat act gaa gaa cat atg tcc ctt tct cag ttc ttc att gaa gac ttc	768
Asn Thr Glu Glu His Met Ser Leu Ser Gln Phe Phe Ile Glu Asp Phe	
240 245 250	
agt gca tct agt gga tta gct ttc tat agc agc aca ggt tgg tac aat	816
Ser Ala Ser Ser Gly Leu Ala Phe Tyr Ser Ser Thr Gly Trp Tyr Asn	
255 260 265 270	
agg ctt ttc atc aac ttt gtg cta agg agg cat gtt ttc ttc ttt gtg	864
Arg Leu Phe Ile Asn Phe Val Leu Arg Arg His Val Phe Phe Phe Val	
275 280 285	
ctg caa acc tat ttc cca gcc ata ttg atg gtg atg ctt tca tgg gtt	912
Leu Gln Thr Tyr Phe Pro Ala Ile Leu Met Val Met Leu Ser Trp Val	
290 295 300	
tca ttt tgg att gac cga aga gct gtt cct gca aga gtt tcc ctg ggt	960
Ser Phe Trp Ile Asp Arg Arg Ala Val Pro Ala Arg Val Ser Leu Gly	
305 310 315	
gga atc acc aca gtg ctg acc atg tcc aca atc atc act gct gtg agc	1008
Gly Ile Thr Thr Val Leu Thr Met Ser Thr Ile Ile Thr Ala Val Ser	
320 325 330	
gcc tcc atg ccc cag gtg tcc tac ctc aag gct gtg gat gtg tac ctg	1056
Ala Ser Met Pro Gln Val Ser Tyr Leu Lys Ala Val Asp Val Tyr Leu	
335 340 345 350	
tgg gtc agc tcc ctc ttt gtg ttc ctg tca gtc att gag tat gca gct	1104
Trp Val Ser Ser Leu Phe Val Phe Leu Ser Val Ile Glu Tyr Ala Ala	
355 360 365	

gtg aac tac ctc acc aca gtg gaa gag cgg aaa caa ttc aag aag aca 1152  
 Val Asn Tyr Leu Thr Thr Val Glu Glu Arg Lys Gln Phe Lys Lys Thr  
 370 375 380  
 gga aag gta cag att tct agg atg tac aat att gat gca gtt caa gct 1200  
 Gly Lys Val Gln Ile Ser Arg Met Tyr Asn Ile Asp Ala Val Gln Ala  
 385 390 395  
 atg gcc ttt gat ggt tgt tac cat gac agc gag att gac atg gac cag 1248  
 Met Ala Phe Asp Gly Cys Tyr His Asp Ser Glu Ile Asp Met Asp Gln  
 400 405 410  
 act tcc ctc tct cta aac tca gaa gac ttc atg aga aga aaa tcg ata 1296  
 Thr Ser Leu Ser Leu Asn Ser Glu Asp Phe Met Arg Arg Lys Ser Ile  
 415 420 425 430  
 tgc agc ccc agc acc gat tca tct cgg ata aag aga aga aaa tcc cta 1344  
 Cys Ser Pro Ser Thr Asp Ser Ser Arg Ile Lys Arg Arg Lys Ser Leu  
 435 440 445  
 gga gga cat gtt ggt aga atc att ctg gaa aac aac cat gtc att gac 1392  
 Gly Gly His Val Gly Arg Ile Ile Leu Glu Asn Asn His Val Ile Asp  
 450 455 460  
 acc tat tct agg att tta ttc ccc att gtg tat atc ttt att 1434  
 Thr Tyr Ser Arg Ile Leu Phe Pro Ile Val Tyr Ile Phe Ile  
 465 470 475  
 taattt 1440

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 <212>PRT  
 <213> Homo sapiens

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 20 25 30  
 Arg Cys Ser Ser Ser Met Lys Gln Thr Trp Lys Gln Glu Thr Arg Met  
 35 40 45  
 Lys Lys Asp Asp Ser Thr Lys Ala Arg Pro Gln Lys Tyr Glu Gln Leu  
 50 55 60  
 Leu His Ile Glu Asp Asn Asp Phe Ala Met Arg Pro Gly Phe Gly Gly  
 65 70 75 80  
 Glu Tyr Tyr Pro Leu Lys Ile Gly Ser Pro Val Pro Val Gly Ile Asp  
 85 90 95  
 Val His Val Glu Ser Ile Asp Ser Ile Ser Glu Thr Asn Met Val Ser

100					105					110					
Phe	Phe	Met	Gly	Tyr	Asp	Phe	Thr	Met	Thr	Phe	Tyr	Leu	Arg	His	Tyr
		115						120					125		
Trp	Lys	Asp	Glu	Arg	Leu	Ser	Phe	Pro	Ser	Thr	Ala	Asn	Lys	Ser	Met
	130					135					140				
Thr	Phe	Asp	His	Arg	Leu	Thr	Arg	Lys	Ile	Trp	Val	Pro	Asp	Ile	Phe
145					150					155					160
Phe	Val	His	Ser	Lys	Arg	Ser	Phe	Ile	His	Asp	Thr	Thr	Met	Glu	Asn
				165					170					175	
Ile	Met	Leu	Arg	Val	His	Pro	Asp	Gly	Asn	Val	Leu	Leu	Ser	Leu	Arg
			180					185					190		
Arg	Ile	Thr	Val	Ser	Ala	Met	Cys	Phe	Met	Asp	Phe	Ser	Arg	Phe	Pro
		195					200					205			
Leu	Asp	Thr	Gln	Asn	Cys	Ser	Leu	Glu	Leu	Glu	Ser	Ala	Tyr	Asn	Glu
	210					215					220				
Asp	Asp	Leu	Met	Leu	Tyr	Trp	Lys	His	Gly	Asn	Lys	Ser	Leu	Asn	Thr
225					230					235					240
Glu	Glu	His	Met	Ser	Leu	Ser	Gln	Phe	Phe	Ile	Glu	Asp	Phe	Ser	Ala
			245						250					255	
Ser	Ser	Gly	Leu	Ala	Phe	Tyr	Ser	Ser	Thr	Gly	Trp	Tyr	Asn	Arg	Leu
			260					265					270		
Phe	Ile	Asn	Phe	Val	Leu	Arg	Arg	His	Val	Phe	Phe	Phe	Val	Leu	Gln
		275					280					285			
Thr	Tyr	Phe	Pro	Ala	Ile	Leu	Met	Val	Met	Leu	Ser	Trp	Val	Ser	Phe
	290					295					300				
Trp	Ile	Asp	Arg	Arg	Ala	Val	Pro	Ala	Arg	Val	Ser	Leu	Gly	Gly	Ile
305					310					315					320
Thr	Thr	Val	Leu	Thr	Met	Ser	Thr	Ile	Ile	Thr	Ala	Val	Ser	Ala	Ser
			325						330					335	
Met	Pro	Gln	Val	Ser	Tyr	Leu	Lys	Ala	Val	Asp	Val	Tyr	Leu	Trp	Val
			340					345				350			
Ser	Ser	Leu	Phe	Val	Phe	Leu	Ser	Val	Ile	Glu	Tyr	Ala	Ala	Val	Asn
		355					360					365			
Tyr	Leu	Thr	Thr	Val	Glu	Glu	Arg	Lys	Gln	Phe	Lys	Lys	Thr	Gly	Lys
	370					375					380				
Val	Gln	Ile	Ser	Arg	Met	Tyr	Asn	Ile	Asp	Ala	Val	Gln	Ala	Met	Ala
385					390					395					400
Phe	Asp	Gly	Cys	Tyr	His	Asp	Ser	Glu	Ile	Asp	Met	Asp	Gln	Thr	Ser

	405		410		415	
Leu Ser Leu Asn Ser Glu Asp Phe Met Arg Arg Lys Ser Ile Cys Ser						
	420		425		430	
Pro Ser Thr Asp Ser Ser Arg Ile Lys Arg Arg Lys Ser Leu Gly Gly						
	435		440		445	
His Val Gly Arg Ile Ile Leu Glu Asn Asn His Val Ile Asp Thr Tyr						
	450		455		460	
Ser Arg Ile Leu Phe Pro Ile Val Tyr Ile Phe Ile						
	465		470		475	
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Met Asn Lys Ser Arg Trp Gln Ser Arg Arg Arg His Gly						
1 5 10						
aga aga agc cac cag cag aac cct tgg ttc aga ctc cgt gat tct gaa						95
Arg Arg Ser His Gln Gln Asn Pro Trp Phe Arg Leu Arg Asp Ser Glu						
15 20 25						
gac agg tct gac tcc cgg gca gca cag ccc gct cac gat tcc ggc cac						143
Asp Arg Ser Asp Ser Arg Ala Ala Gln Pro Ala His Asp Ser Gly His						
30 35 40 45						
ggg gat gac gag tct ccg tca acc tgg tct ggc aca gct ggg acc tcc						191
Gly Asp Asp Glu Ser Pro Ser Thr Ser Ser Gly Thr Ala Gly Thr Ser						
50 55 60						
tct gtg cca gag cta cct ggg ttt tac ttt gac cct gaa aag aaa cgc						239
Ser Val Pro Glu Leu Pro Gly Phe Tyr Phe Asp Pro Glu Lys Lys Arg						
65 70 75						
tac ttc cgc ttg ctc cct gga cat aac aac tgc aac ccc ctg acg aaa						287
Tyr Phe Arg Leu Leu Pro Gly His Asn Asn Cys Asn Pro Leu Thr Lys						
80 85 90						
gag agc atc cgg cag aag gag atg gag agc aag aga ctg cgg ctg ctc						335
Glu Ser Ile Arg Gln Lys Glu Met Glu Ser Lys Arg Leu Arg Leu Leu						
95 100 105						
cag gaa gaa gac aga cgg aaa aag att gcc agg atg gga ttt aat gca						383
Gln Glu Glu Asp Arg Arg Lys Lys Ile Ala Arg Met Gly Phe Asn Ala						
110 115 120 125						
tct tcc atg cta cga aaa agc cag ctg ggt ttt ctc aac gtc acc aat						431
Ser Ser Met Leu Arg Lys Ser Gln Leu Gly Phe Leu Asn Val Thr Asn						

	130	135	140	
tac tgc cat tta gcc cac gag ctg cgt ctc agc tgc atg gag agg aaa				479
Tyr Cys His Leu Ala His Glu Leu Arg Leu Ser Cys Met Glu Arg Lys				
	145	150	155	
aag gtc cag att cga agc atg gat ccc tcc gcc ttg gca agc gac cga				527
Lys Val Gln Ile Arg Ser Met Asp Pro Ser Ala Leu Ala Ser Asp Arg				
	160	165	170	
ttt aac ctc ata ctg gca gat acc aac agt gac cgg ctc ttc aca gtg				575
Phe Asn Leu Ile Leu Ala Asp Thr Asn Ser Asp Arg Leu Phe Thr Val				
	175	180	185	
aac gat gtt aca gtt gga ggc tcc aag tat ggt atc atc aac ctg caa				623
Asn Asp Val Thr Val Gly Gly Ser Lys Tyr Gly Ile Ile Asn Leu Gln				
	190	195	200	205
agt ctg aag acc cct acg ctc aag gtg ttc atg cca cga aaa cct ccg				671
Ser Leu Lys Thr Pro Thr Leu Lys Val Phe Met Pro Arg Lys Pro Pro				
	210	215	220	
att ctc acc aac cgg aag gtg aac act tcg gtg tgc tgg gcc tcg ctg				719
Ile Leu Thr Asn Arg Lys Val Asn Thr Ser Val Cys Trp Ala Ser Leu				
	225	230	235	
aat cac ttg gat tcc cac att ctg cta tgc ctc atg gga ctc gca gag				767
Asn His Leu Asp Ser His Ile Leu Leu Cys Leu Met Gly Leu Ala Glu				
	240	245	250	
act cca ggc tgt gcc acc ctg ctc cca gca tca ctg ttc gtc aat agt				815
Thr Pro Gly Cys Ala Thr Leu Leu Pro Ala Ser Leu Phe Val Asn Ser				
	255	260	265	
ccc cac cca gga ata gac cgg cct ggc atg ctc tgc agt ttc cgg atc				863
Pro His Pro Gly Ile Asp Arg Pro Gly Met Leu Cys Ser Phe Arg Ile				
	270	275	280	285
cct ggg ggt gcc tgg tcc tgt gcc tgg tcc ctg aat atc caa gca aat				911
Pro Gly Gly Ala Trp Ser Cys Ala Trp Ser Leu Asn Ile Gln Ala Asn				
	290	295	300	
aac tgc ttc agt aca ggc ttg tct cgg cgg gtc ctg ttg acc aac gtg				959
Asn Cys Phe Ser Thr Gly Leu Ser Arg Arg Val Leu Leu Thr Asn Val				
	305	310	315	
gtg acg gga cac cgg cag tcc ttt ggg acc aac agt gat gtc ttg gcc				1007
Val Thr Gly His Arg Gln Ser Phe Gly Thr Asn Ser Asp Val Leu Ala				
	320	325	330	
cag cag ttt gct ctc atg gct cct ctg ctg ttt aat ggc tgc cgc tct				1055
Gln Gln Phe Ala Leu Met Ala Pro Leu Leu Phe Asn Gly Cys Arg Ser				
	335	340	345	
ggg gaa atc ttt gcc att gat ctg cgt tgt gga aat caa ggc aag gga				1103
Gly Glu Ile Phe Ala Ile Asp Leu Arg Cys Gly Asn Gln Gly Lys Gly				
	350	355	360	365

tgg aag gcc acc cgc ctg ttt cat gat tca gca gtg acc tct gtg cgg	1151
Trp Lys Ala Thr Arg Leu Phe His Asp Ser Ala Val Thr Ser Val Arg	
370 375 380	
atc ctc caa gat gag caa tac ctg atg gct tca gac atg gct gga aag	1199
Ile Leu Gln Asp Glu Gln Tyr Leu Met Ala Ser Asp Met Ala Gly Lys	
385 390 395	
atc aag ctg tgg gac ctg agg acc acg aag tgc gta agg cag tac gaa	1247
Ile Lys Leu Trp Asp Leu Arg Thr Thr Lys Cys Val Arg Gln Tyr Glu	
400 405 410	
ggc cac gtg aat gag tac gcc tac ctg ccc ctg cat gtg cac gag gaa	1295
Gly His Val Asn Glu Tyr Ala Tyr Leu Pro Leu His Val His Glu Glu	
415 420 425	
gaa gga atc ctg gtg gca gtg ggc cag gac tgc tac acg aga atc tgg	1343
Glu Gly Ile Leu Val Ala Val Gly Gln Asp Cys Tyr Thr Arg Ile Trp	
430 435 440 445	
agc ctc cac gat gcc cgc cta ctg aga acc ata ccc tcc ccg tac cct	1391
Ser Leu His Asp Ala Arg Leu Leu Arg Thr Ile Pro Ser Pro Tyr Pro	
450 455 460	
gcc tcc aag gcc gac att ccc agt gtg gcc ttc tcg tcg cgg ctg ggg	1439
Ala Ser Lys Ala Asp Ile Pro Ser Val Ala Phe Ser Ser Arg Leu Gly	
465 470 475	
ggc tcc cgg ggg cgc gcc ggg gct gct cat ggc tgt cgg gca gga cct	1487
Gly Ser Arg Gly Arg Ala Gly Ala Ala His Gly Cys Arg Ala Gly Pro	
480 485 490	
tta ctg tta ctc cta cag cta att ctg cag ggc aca gcc cag agc cat	1535
Leu Leu Leu Leu Leu Gln Leu Ile Leu Gln Gly Thr Ala Gln Ser His	
495 500 505	
gtg gat ttg act tac ggg agt aaa gcg taacttttta ctgcatctaa	1582
Val Asp Leu Thr Tyr Gly Ser Lys Ala	
510 515	
tgagg	1587

<210>12

<211>518

<212>PRT

<213> Homo sapiens

<400>12

Met Asn Lys Ser Arg Trp Gln Ser Arg Arg Arg His Gly Arg Arg Ser
1 5 10 15

His Gln Gln Asn Pro Trp Phe Arg Leu Arg Asp Ser Glu Asp Arg Ser
20 25 30

Asp Ser Arg Ala Ala Gln Pro Ala His Asp Ser Gly His Gly Asp Asp  
 35 40 45  
 Glu Ser Pro Ser Thr Ser Ser Gly Thr Ala Gly Thr Ser Ser Val Pro  
 50 55 60  
 Glu Leu Pro Gly Phe Tyr Phe Asp Pro Glu Lys Lys Arg Tyr Phe Arg  
 65 70 75 80  
 Leu Leu Pro Gly His Asn Asn Cys Asn Pro Leu Thr Lys Glu Ser Ile  
 85 90 95  
 Arg Gln Lys Glu Met Glu Ser Lys Arg Leu Arg Leu Leu Gln Glu Glu  
 100 105 110  
 Asp Arg Arg Lys Lys Ile Ala Arg Met Gly Phe Asn Ala Ser Ser Met  
 115 120 125  
 Leu Arg Lys Ser Gln Leu Gly Phe Leu Asn Val Thr Asn Tyr Cys His  
 130 135 140  
 Leu Ala His Glu Leu Arg Leu Ser Cys Met Glu Arg Lys Lys Val Gln  
 145 150 155 160  
 Ile Arg Ser Met Asp Pro Ser Ala Leu Ala Ser Asp Arg Phe Asn Leu  
 165 170 175  
 Ile Leu Ala Asp Thr Asn Ser Asp Arg Leu Phe Thr Val Asn Asp Val  
 180 185 190  
 Thr Val Gly Gly Ser Lys Tyr Gly Ile Ile Asn Leu Gln Ser Leu Lys  
 195 200 205  
 Thr Pro Thr Leu Lys Val Phe Met Pro Arg Lys Pro Pro Ile Leu Thr  
 210 215 220  
 Asn Arg Lys Val Asn Thr Ser Val Cys Trp Ala Ser Leu Asn His Leu  
 225 230 235 240  
 Asp Ser His Ile Leu Leu Cys Leu Met Gly Leu Ala Glu Thr Pro Gly  
 245 250 255  
 Cys Ala Thr Leu Leu Pro Ala Ser Leu Phe Val Asn Ser Pro His Pro  
 260 265 270  
 Gly Ile Asp Arg Pro Gly Met Leu Cys Ser Phe Arg Ile Pro Gly Gly  
 275 280 285  
 Ala Trp Ser Cys Ala Trp Ser Leu Asn Ile Gln Ala Asn Asn Cys Phe  
 290 295 300  
 Ser Thr Gly Leu Ser Arg Arg Val Leu Leu Thr Asn Val Val Thr Gly  
 305 310 315 320  
 His Arg Gln Ser Phe Gly Thr Asn Ser Asp Val Leu Ala Gln Gln Phe  
 325 330 335



Ala Leu Met Ala Pro Leu Leu Phe Asn Gly Cys Arg Ser Gly Glu Ile  
340 345 350

Phe Ala Ile Asp Leu Arg Cys Gly Asn Gln Gly Lys Gly Trp Lys Ala  
355 360 365

Thr Arg Leu Phe His Asp Ser Ala Val Thr Ser Val Arg Ile Leu Gln  
370 375 380

Asp Glu Gln Tyr Leu Met Ala Ser Asp Met Ala Gly Lys Ile Lys Leu  
385 390 395 400

Trp Asp Leu Arg Thr Thr Lys Cys Val Arg Gln Tyr Glu Gly His Val  
405 410 415

Asn Glu Tyr Ala Tyr Leu Pro Leu His Val His Glu Glu Glu Gly Ile  
420 425 430

Leu Val Ala Val Gly Gln Asp Cys Tyr Thr Arg Ile Trp Ser Leu His  
435 440 445

Asp Ala Arg Leu Leu Arg Thr Ile Pro Ser Pro Tyr Pro Ala Ser Lys  
450 455 460

Ala Asp Ile Pro Ser Val Ala Phe Ser Ser Arg Leu Gly Gly Ser Arg  
465 470 475 480

Gly Arg Ala Gly Ala Ala His Gly Cys Arg Ala Gly Pro Leu Leu Leu  
485 490 495

Leu Leu Gln Leu Ile Leu Gln Gly Thr Ala Gln Ser His Val Asp Leu  
500 505 510

Thr Tyr Gly Ser Lys Ala  
515

<210>13

<211>1081

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(4) .. (1069)

<400>13

agg atg gcc cag aag gag aac agt tat ccc tgg ccc tat ggc aag cag 48  
Met Ala Gln Lys Glu Asn Ser Tyr Pro Trp Pro Tyr Gly Lys Gln  
1 5 10 15

acg gct cca gcc ggc ctg agt acc ctg ctc ccg cga gtc ctc ccg agg 96  
Thr Ala Pro Ala Gly Leu Ser Thr Leu Leu Pro Arg Val Leu Pro Arg  
20 25 30

atc ccc acc gaa gct gcg cgt gag ctc ccg agc tgc gca gac cca cag 144  
Ile Pro Thr Glu Ala Ala Arg Glu Leu Pro Ser Cys Ala Asp Pro Gln  
35 40 45

ccc gca gcg gcc cct ggc cat gag gtg gta gag aac agt tgt ggg aag	192
Pro Ala Ala Ala Pro Gly His Glu Val Val Glu Asn Ser Cys Gly Lys	
50 55 60	
cgc agc atc tta acg cgg ccc ttc ctg gtc gac gac ctt gag act ggg	240
Arg Ser Ile Leu Thr Arg Pro Phe Leu Val Asp Asp Leu Glu Thr Gly	
65 70 75	
cgt ccc ctg ggc aaa gac aag ttt gta cat gtg tac ttg gct cga aag	288
Arg Pro Leu Gly Lys Asp Lys Phe Val His Val Tyr Leu Ala Arg Lys	
80 85 90 95	
aag aca agc cat ttc atc gtg gcc ctc aag gcc ttc aag tct cag ata	336
Lys Thr Ser His Phe Ile Val Ala Leu Lys Ala Phe Lys Ser Gln Ile	
100 105 110	
gag gag ggc gtg gag cac cag atg cgc agg cag atg gaa atc cag gcc	384
Glu Glu Gly Val Glu His Gln Met Arg Arg Gln Met Glu Ile Gln Ala	
115 120 125	
ccc ttt cag cat ccc aac ata ttg agt ctc tac aac tat ttt tat gac	432
Pro Phe Gln His Pro Asn Ile Leu Ser Leu Tyr Asn Tyr Phe Tyr Asp	
130 135 140	
ctg aga aaa atc tac tgg att cta gag tac gcc ccc gcc acc cct acc	480
Leu Arg Lys Ile Tyr Trp Ile Leu Glu Tyr Ala Pro Ala Thr Pro Thr	
145 150 155	
ccc gag gag ctg tac cag gag ctg cga aag agc cgc acc ttt gac aag	528
Pro Glu Glu Leu Tyr Gln Glu Leu Arg Lys Ser Arg Thr Phe Asp Lys	
160 165 170 175	
aag cca aca gcc acc atc acg ggg gag gtg gca gat gct ctg atg tac	576
Lys Pro Thr Ala Thr Ile Thr Gly Glu Val Ala Asp Ala Leu Met Tyr	
180 185 190	
tgc cac ggg aag aag gtg act ccc aga gac atg aag cca gat aat cta	624
Cys His Gly Lys Lys Val Thr Pro Arg Asp Met Lys Pro Asp Asn Leu	
195 200 205	
ctc tca ggg ctt gag ggc gag ctg aaa gtt gcc gac ttc ggc tgc cct	672
Leu Ser Gly Leu Glu Gly Glu Leu Lys Val Ala Asp Phe Gly Cys Pro	
210 215 220	
gtg cac gcc ccc tca ctg agg agg aag aca aga caa atg tgt ggc acc	720
Val His Ala Pro Ser Leu Arg Arg Lys Thr Arg Gln Met Cys Gly Thr	
225 230 235	
ctg gac tac ctg tcc cca gag aca att gag ggg cgc gcg cac acc gag	768
Leu Asp Tyr Leu Ser Pro Glu Thr Ile Glu Gly Arg Ala His Thr Glu	
240 245 250 255	
aag gtg gat ttg tgg tac atc gga gca ctc ggc tat gag ccg ctg gtg	816
Lys Val Asp Leu Trp Tyr Ile Gly Ala Leu Gly Tyr Glu Pro Leu Val	
260 265 270	
ggg aac ccc aca cac aat gag gcc tat ggg cga atc gtc aag gtg gcc	864

Gly Asn Pro Thr His Asn Glu Ala Tyr Gly Arg Ile Val Lys Val Ala  
 275 280 285

cta aaa ttc ccc ctt ctg tgc cca gga gag ccc cag gac ctc atc tcc 912  
 Leu Lys Phe Pro Leu Leu Cys Pro Gly Glu Pro Gln Asp Leu Ile Ser  
 290 295 300

aag ctg ctt agg cat aac ccc tca gaa cgg ctg ccc ctg gcc cag gtc 960  
 Lys Leu Leu Arg His Asn Pro Ser Glu Arg Leu Pro Leu Ala Gln Val  
 305 310 315

tca gcc cac cct ggg atc ctg gcc cat tct cgg agg gtt ttg cct ccc 1008  
 Ser Ala His Pro Gly Ile Leu Ala His Ser Arg Arg Val Leu Pro Pro  
 320 325 330 335

tct gcc cat cag tct gtc ccc tgg tgg tcc ctg aca ttc act cgg ggg 1056  
 Ser Ala His Gln Ser Val Pro Trp Trp Ser Leu Thr Phe Thr Arg Gly  
 340 345 350

cgt ctg tgt ttg taagtctgca tat 1081  
 Arg Leu Cys Leu  
 355

<210>14  
 <211>355  
 <212>PRT  
 <213> Homo sapiens

<400>14  
 Met Ala Gln Lys Glu Asn Ser Tyr Pro Trp Pro Tyr Gly Lys Gln Thr  
 1 5 10 15

Ala Pro Ala Gly Leu Ser Thr Leu Leu Pro Arg Val Leu Pro Arg Ile  
 20 25 30

Pro Thr Glu Ala Ala Arg Glu Leu Pro Ser Cys Ala Asp Pro Gln Pro  
 35 40 45

Ala Ala Ala Pro Gly His Glu Val Val Glu Asn Ser Cys Gly Lys Arg  
 50 55 60

Ser Ile Leu Thr Arg Pro Phe Leu Val Asp Asp Leu Glu Thr Gly Arg  
 65 70 75 80

Pro Leu Gly Lys Asp Lys Phe Val His Val Tyr Leu Ala Arg Lys Lys  
 85 90 95

Thr Ser His Phe Ile Val Ala Leu Lys Ala Phe Lys Ser Gln Ile Glu  
 100 105 110

Glu Gly Val Glu His Gln Met Arg Arg Gln Met Glu Ile Gln Ala Pro  
 115 120 125

Phe Gln His Pro Asn Ile Leu Ser Leu Tyr Asn Tyr Phe Tyr Asp Leu  
 130 135 140

Arg Lys Ile Tyr Trp Ile Leu Glu Tyr Ala Pro Ala Thr Pro Thr Pro

145		150		155		160
Glu Glu Leu Tyr	Gln Glu Leu Arg Lys	Ser Arg Thr Phe Asp	Lys Lys			
	165	170	175			
Pro Thr Ala Thr	Ile Thr Gly Glu Val	Ala Asp Ala Leu Met	Tyr Cys			
	180	185	190			
His Gly Lys Lys	Val Thr Pro Arg Asp	Met Lys Pro Asp	Asn Leu Leu			
	195	200	205			
Ser Gly Leu Glu	Gly Glu Leu Lys Val	Ala Asp Phe Gly	Cys Pro Val			
	210	215	220			
His Ala Pro Ser	Leu Arg Arg Lys Thr	Arg Gln Met Cys	Gly Thr Leu			
	225	230	235	240		
Asp Tyr Leu Ser	Pro Glu Thr Ile Glu	Gly Arg Ala His	Thr Glu Lys			
	245	250	255			
Val Asp Leu Trp	Tyr Ile Gly Ala Leu	Gly Tyr Glu Pro	Leu Val Gly			
	260	265	270			
Asn Pro Thr His	Asn Glu Ala Tyr Gly	Arg Ile Val Lys	Val Ala Leu			
	275	280	285			
Lys Phe Pro Leu	Leu Cys Pro Gly Glu	Pro Gln Asp Leu	Ile Ser Lys			
	290	295	300			
Leu Leu Arg His	Asn Pro Ser Glu Arg	Leu Pro Leu Ala	Gln Val Ser			
	305	310	315	320		
Ala His Pro Gly	Ile Leu Ala His Ser	Arg Arg Val Leu	Pro Pro Ser			
	325	330	335			
Ala His Gln Ser	Val Pro Trp Trp Ser	Leu Thr Phe Thr	Arg Gly Arg			
	340	345	350			
Leu Cys Leu						
	355					

<210>15

<211>1524

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(7) ..(1510)

<400>15

agcatt atg aac act aat gac ctt aaa ctc agg ttg tcc aaa gct gag	48
Met Asn Thr Asn Asp Leu Lys Leu Arg Leu Ser Lys Ala Glu	
1 5 10	

caa gaa cac cca cta cgt ttc tgg aat gag ctt gaa gaa gcc cga cag	96
Gln Glu His Pro Leu Arg Phe Trp Asn Glu Leu Glu Glu Ala Arg Gln	
15 20 25 30	

gta gaa ctt tat gca gag ctc cag gcc atc gac ttt cag gaa ctg aac	144
Val Glu Leu Tyr Ala Glu Leu Gln Ala Ile Asp Phe Gln Glu Leu Asn	
35 40 45	
ttc ttt ttc caa aag gcc att gaa gga ttt aac cag tcc tct cat caa	192
Phe Phe Phe Gln Lys Ala Ile Glu Gly Phe Asn Gln Ser Ser His Gln	
50 55 60	
gaa aag gtg gat gcg gga atg gaa cct gtc cct cga gaa gta ctg ggc	240
Glu Lys Val Asp Ala Gly Met Glu Pro Val Pro Arg Glu Val Leu Gly	
65 70 75	
agt gct gca ggg aag cta gat cag ctc cag gcc tgg gaa agc aaa gtt	288
Ser Ala Ala Gly Lys Leu Asp Gln Leu Gln Ala Trp Glu Ser Lys Val	
80 85 90	
ttc cag att tct gag aac aaa gtc aca gtt gtt cta gct ggt ggg cag	336
Phe Gln Ile Ser Glu Asn Lys Val Thr Val Val Leu Ala Gly Gly Gln	
95 100 105 110	
ggg act aga ctc gtt gca tat cca aag ggg atg tat gat gtt ggt ttg	384
Gly Thr Arg Leu Val Ala Tyr Pro Lys Gly Met Tyr Asp Val Gly Leu	
115 120 125	
cca tcc cat aag aca ctt ttt cag att caa gca gag cat atc ctg aag	432
Pro Ser His Lys Thr Leu Phe Gln Ile Gln Ala Glu His Ile Leu Lys	
130 135 140	
cta caa cag tta gct gaa aaa tat tat ggc aac aaa tgc att att cca	480
Leu Gln Gln Leu Ala Glu Lys Tyr Tyr Gly Asn Lys Cys Ile Ile Pro	
145 150 155	
tat tac gtc atg acc agc gag ttc act ctg ggg ccc acg gcc gag ttc	528
Tyr Tyr Val Met Thr Ser Glu Phe Thr Leu Gly Pro Thr Ala Glu Phe	
160 165 170	
ttc agg gag cac aac ttc ttc cac ctg gac ccc gcc aac gtg gtc atg	576
Phe Arg Glu His Asn Phe Phe His Leu Asp Pro Ala Asn Val Val Met	
175 180 185 190	
ttt gag cag cgc ctg ctg cct gct gtg acc ttt gat ggc aag gtt atc	624
Phe Glu Gln Arg Leu Leu Pro Ala Val Thr Phe Asp Gly Lys Val Ile	
195 200 205	
ctg gag cgg aaa gac aaa gtt gcc atg gcc cca gac ggc aac ggg ggc	672
Leu Glu Arg Lys Asp Lys Val Ala Met Ala Pro Asp Gly Asn Gly Gly	
210 215 220	
ctc tac tgc gcg ctg gag gac cac aag atc ctg gag gac atg gag cgc	720
Leu Tyr Cys Ala Leu Glu Asp His Lys Ile Leu Glu Asp Met Glu Arg	
225 230 235	
cgg gga gtg gag ttt gtg cac gtg tac tgt gtg gac aac atc ctg gtg	768
Arg Gly Val Glu Phe Val His Val Tyr Cys Val Asp Asn Ile Leu Val	
240 245 250	

cgg ctg gcg gac cct gtc ttc atc ggc ttc tgt gtg ttg cag ggc gca	816
Arg Leu Ala Asp Pro Val Phe Ile Gly Phe Cys Val Leu Gln Gly Ala	
255 260 265 270	
gac tgt ggc gcc aag gtg gtg gaa aag gca tac ccc gag gag ccc gtg	864
Asp Cys Gly Ala Lys Val Val Glu Lys Ala Tyr Pro Glu Glu Pro Val	
275 280 285	
ggc gtg gtg tgc cag gtg gac ggt gtc ccc cag gtg gtg gag tac agc	912
Gly Val Val Cys Gln Val Asp Gly Val Pro Gln Val Val Glu Tyr Ser	
290 295 300	
gag atc agt cct gag acc gca cag cta cgt gtc tcc gac ggg agc ctg	960
Glu Ile Ser Pro Glu Thr Ala Gln Leu Arg Val Ser Asp Gly Ser Leu	
305 310 315	
ctg tac aat gca ggc aac atc tgc aac cac ttc ttc acc cga ggc ttc	1008
Leu Tyr Asn Ala Gly Asn Ile Cys Asn His Phe Phe Thr Arg Gly Phe	
320 325 330	
ctt aag gcg gtc acc agg gag ttt gag cct ttg ctg aag cca cac gtg	1056
Leu Lys Ala Val Thr Arg Glu Phe Glu Pro Leu Leu Lys Pro His Val	
335 340 345 350	
gct gtg aag aag gtc ccg tat gtg gat gag gag ggg aat ctg gta aag	1104
Ala Val Lys Lys Val Pro Tyr Val Asp Glu Glu Gly Asn Leu Val Lys	
355 360 365	
ccg cta aaa ccg aac ggg ata aag atg gag aag ttt gtg ttt gat gtg	1152
Pro Leu Lys Pro Asn Gly Ile Lys Met Glu Lys Phe Val Phe Asp Val	
370 375 380	
ttc cgg ttt gct aag aac ttt gct gcc ttg gaa gtg ctg cgg gag gag	1200
Phe Arg Phe Ala Lys Asn Phe Ala Ala Leu Glu Val Leu Arg Glu Glu	
385 390 395	
gaa ttt tcc cca ctg aag aac gca gag cca gcc gac agg gac agt ccc	1248
Glu Phe Ser Pro Leu Lys Asn Ala Glu Pro Ala Asp Arg Asp Ser Pro	
400 405 410	
cgc acc gct cgc cag gcc ctg ctc acc cag cac tac cgg tgg gct ctg	1296
Arg Thr Ala Arg Gln Ala Leu Leu Thr Gln His Tyr Arg Trp Ala Leu	
415 420 425 430	
cgg gcc ggg gcc cgc ttc ctg gat gcc cat ggg gcc cgg ctc cca gag	1344
Arg Ala Gly Ala Arg Phe Leu Asp Ala His Gly Ala Arg Leu Pro Glu	
435 440 445	
ctg ccc agc ttg ccc cca aat gga gac cct ccg gcc atc tgt gag ata	1392
Leu Pro Ser Leu Pro Pro Asn Gly Asp Pro Pro Ala Ile Cys Glu Ile	
450 455 460	
tcg ccc ttg gtg tct tac tct gga gag ggt tta gaa gtg tac ctg caa	1440
Ser Pro Leu Val Ser Tyr Ser Gly Glu Gly Leu Glu Val Tyr Leu Gln	
465 470 475	
ggc cgg gag ttc cag tcc ccg ctc atc ctg gat gaa gac cag gcc agg	1488

Gly Arg Glu Phe Gln Ser Pro Leu Ile Leu Asp Glu Asp Gln Ala Arg  
 480 485 490

gag ctg gtg aaa aat ggt ata tgaacctgat accaa 1524  
 Glu Leu Val Lys Asn Gly Ile  
 495 500

<210>16  
 <211>501  
 <212>PRT  
 <213> Homo sapiens

<400>16  
 Met Asn Thr Asn Asp Leu Lys Leu Arg Leu Ser Lys Ala Glu Gln Glu  
 1 5 10 15

His Pro Leu Arg Phe Trp Asn Glu Leu Glu Glu Ala Arg Gln Val Glu  
 20 25 30

Leu Tyr Ala Glu Leu Gln Ala Ile Asp Phe Gln Glu Leu Asn Phe Phe  
 35 40 45

Phe Gln Lys Ala Ile Glu Gly Phe Asn Gln Ser Ser His Gln Glu Lys  
 50 55 60

Val Asp Ala Gly Met Glu Pro Val Pro Arg Glu Val Leu Gly Ser Ala  
 65 70 75 80

Ala Gly Lys Leu Asp Gln Leu Gln Ala Trp Glu Ser Lys Val Phe Gln  
 85 90 95

Ile Ser Glu Asn Lys Val Thr Val Val Leu Ala Gly Gly Gln Gly Thr  
 100 105 110

Arg Leu Val Ala Tyr Pro Lys Gly Met Tyr Asp Val Gly Leu Pro Ser  
 115 120 125

His Lys Thr Leu Phe Gln Ile Gln Ala Glu His Ile Leu Lys Leu Gln  
 130 135 140

Gln Leu Ala Glu Lys Tyr Tyr Gly Asn Lys Cys Ile Ile Pro Tyr Tyr  
 145 150 155 160

Val Met Thr Ser Glu Phe Thr Leu Gly Pro Thr Ala Glu Phe Phe Arg  
 165 170 175

Glu His Asn Phe Phe His Leu Asp Pro Ala Asn Val Val Met Phe Glu  
 180 185 190

Gln Arg Leu Leu Pro Ala Val Thr Phe Asp Gly Lys Val Ile Leu Glu  
 195 200 205

Arg Lys Asp Lys Val Ala Met Ala Pro Asp Gly Asn Gly Gly Leu Tyr  
 210 215 220

Cys Ala Leu Glu Asp His Lys Ile Leu Glu Asp Met Glu Arg Arg Gly  
 225 230 235 240

Val Glu Phe Val His Val Tyr Cys Val Asp Asn Ile Leu Val Arg Leu  
 245 250 255  
 Ala Asp Pro Val Phe Ile Gly Phe Cys Val Leu Gln Gly Ala Asp Cys  
 260 265 270  
 Gly Ala Lys Val Val Glu Lys Ala Tyr Pro Glu Glu Pro Val Gly Val  
 275 280 285  
 Val Cys Gln Val Asp Gly Val Pro Gln Val Val Glu Tyr Ser Glu Ile  
 290 295 300  
 Ser Pro Glu Thr Ala Gln Leu Arg Val Ser Asp Gly Ser Leu Leu Tyr  
 305 310 315 320  
 Asn Ala Gly Asn Ile Cys Asn His Phe Phe Thr Arg Gly Phe Leu Lys  
 325 330 335  
 Ala Val Thr Arg Glu Phe Glu Pro Leu Leu Lys Pro His Val Ala Val  
 340 345 350  
 Lys Lys Val Pro Tyr Val Asp Glu Glu Gly Asn Leu Val Lys Pro Leu  
 355 360 365  
 Lys Pro Asn Gly Ile Lys Met Glu Lys Phe Val Phe Asp Val Phe Arg  
 370 375 380  
 Phe Ala Lys Asn Phe Ala Ala Leu Glu Val Leu Arg Glu Glu Glu Phe  
 385 390 395 400  
 Ser Pro Leu Lys Asn Ala Glu Pro Ala Asp Arg Asp Ser Pro Arg Thr  
 405 410 415  
 Ala Arg Gln Ala Leu Leu Thr Gln His Tyr Arg Trp Ala Leu Arg Ala  
 420 425 430  
 Gly Ala Arg Phe Leu Asp Ala His Gly Ala Arg Leu Pro Glu Leu Pro  
 435 440 445  
 Ser Leu Pro Pro Asn Gly Asp Pro Pro Ala Ile Cys Glu Ile Ser Pro  
 450 455 460  
 Leu Val Ser Tyr Ser Gly Glu Gly Leu Glu Val Tyr Leu Gln Gly Arg  
 465 470 475 480  
 Glu Phe Gln Ser Pro Leu Ile Leu Asp Glu Asp Gln Ala Arg Glu Leu  
 485 490 495  
 Val Lys Asn Gly Ile  
 500

<210>17  
 <211>461  
 <212>DNA  
 <213> Homo sapiens



<220>  
 <221> CDS  
 <222> (9) .. (393)  
 <400>17  
 acgcagag atg cag atc ttt gtg aag acc ctc acg ggc aag acc atc 47  
           Met Gln Ile Phe Val Lys Thr Leu Thr Gly Lys Thr Ile  
           1                  5                  10  
  
 acc ctt gag gtc aag ccc acc gac acc att gag aat gtc aaa acc aaa 95  
 Thr Leu Glu Val Lys Pro Thr Asp Thr Ile Glu Asn Val Lys Thr Lys  
           15                  20                  25  
  
 att cag gac aag gag ggt atc cca cct gac cag cag cgt ctg ata ttt 143  
 Ile Gln Asp Lys Glu Gly Ile Pro Pro Asp Gln Gln Arg Leu Ile Phe  
           30                  35                  40                  45  
  
 gct ggg aaa cgg ctg gag gat ggc cac act ctc tca ggc tac aac atc 191  
 Ala Gly Lys Arg Leu Glu Asp Gly His Thr Leu Ser Gly Tyr Asn Ile  
                   50                  55                  60  
  
 cag aaa gag tcc acc cta aac ctg gtg ctg cgc ctg cga ggt ggc att 239  
 Gln Lys Glu Ser Thr Leu Asn Leu Val Leu Arg Leu Arg Gly Gly Ile  
                   65                  70                  75  
  
 act gag cct tcc ctc cgc cag ctc gtc cag aaa tac aac tgc gac gag 287  
 Thr Glu Pro Ser Leu Arg Gln Leu Val Gln Lys Tyr Asn Cys Asp Glu  
           80                  85                  90  
  
 atg atc tgc tgc aag tgc tat gct tgc ctg cac ccc ggt gct atc aac 335  
 Met Ile Cys Cys Lys Cys Tyr Ala Cys Leu His Pro Gly Ala Ile Asn  
           95                  100                  105  
  
 tgc cac aag aag aaa tgc ggc cac acc aac aac ctg tac ccc agg aag 383  
 Cys His Lys Lys Lys Cys Gly His Thr Asn Asn Leu Tyr Pro Arg Lys  
           110                  115                  120                  125  
  
 aag gtc aaa taaggtcttt ccttccttga agggcagcag ccttctgccc 432  
 Lys Val Lys  
  
 aggccccatg gccctggggc ctcaataaa 461

<210>18  
 <211>128  
 <212>PRT  
 <213> Homo sapiens

<400>18  
 Met Gln Ile Phe Val Lys Thr Leu Thr Gly Lys Thr Ile Thr Leu Glu  
           1                  5                  10                  15  
  
 Val Lys Pro Thr Asp Thr Ile Glu Asn Val Lys Thr Lys Ile Gln Asp  
           20                  25                  30  
  
 Lys Glu Gly Ile Pro Pro Asp Gln Gln Arg Leu Ile Phe Ala Gly Lys

35	40	45	
Arg Leu Glu Asp Gly His Thr Leu Ser Gly Tyr Asn Ile Gln Lys Glu			
50	55	60	
Ser Thr Leu Asn Leu Val Leu Arg Leu Arg Gly Gly Ile Thr Glu Pro			
65	70	75	80
Ser Leu Arg Gln Leu Val Gln Lys Tyr Asn Cys Asp Glu Met Ile Cys			
85	90	95	
Cys Lys Cys Tyr Ala Cys Leu His Pro Gly Ala Ile Asn Cys His Lys			
100	105	110	
Lys Lys Cys Gly His Thr Asn Asn Leu Tyr Pro Arg Lys Lys Val Lys			
115	120	125	
<210>19			
<211>2296			
<212>DNA			
<213> Homo sapiens			
<220>			
<221> CDS			
<222>(24) .. (2271)			
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Lys	Ala	Glu	Pro	Tyr	Glu	Ser	Ser	Gln	Gly	Lys	Gly	Thr	Pro	Arg	Gly
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Ala Glu Asn Glu Thr Leu Thr Leu Lys Glu Tyr His Glu Gln Glu Glu	370		375		380
Ile Phe Lys Leu Arg Leu Gly His Leu Lys Lys Glu Glu Ala Glu Ile	385		390		395
Gln Ala Glu Leu Glu Arg Leu Glu Arg Val Arg Lys Leu His Ile Arg	405		410		415
Glu Val Lys Arg Ile His Asn Glu Asp Asn Ser Gln Phe Lys Tyr His	420		425		430
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 625 630 635 640  
 Thr Ala Ile Val Asn Ser Asp Leu Asp Lys Ala Tyr Gln Glu Leu Leu  
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Ser Glu Val Lys Asn Val Asp Leu Ala Ser Pro Glu Glu His Gln Lys
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cac cga gag atg gct gtt gac tgc cct gga gat ttg ggc acc agg atg 143
His Arg Glu Met Ala Val Asp Cys Pro Gly Asp Leu Gly Thr Arg Met
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Met Pro Ile Arg Arg Ser Ala Gln Leu Glu Arg Ile Arg Gln Gln Gln
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gag gac atg agg cgt agg aga gag gaa gaa ggg aaa aag caa gaa ctt 239
Glu Asp Met Arg Arg Arg Arg Glu Glu Glu Gly Lys Lys Gln Glu Leu
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gac ctt aat tct tcc atg aga ctt aag aaa cta gcc caa att cct cca 287
Asp Leu Asn Ser Ser Met Arg Leu Lys Lys Leu Ala Gln Ile Pro Pro
           80             85             90             95

aag acc gga ata gat aac cct atg ttt gat aca gag gaa gga att gtc 335
Lys Thr Gly Ile Asp Asn Pro Met Phe Asp Thr Glu Glu Gly Ile Val
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tta gaa agt cct cat tat gct gtg aaa ata tta gaa ata gaa gac ttg 383
Leu Glu Ser Pro His Tyr Ala Val Lys Ile Leu Glu Ile Glu Asp Leu
           115            120            125

ttt tct tca ctt aaa cat atc caa cat act ttg gta gat tct cag agc 431
Phe Ser Ser Leu Lys His Ile Gln His Thr Leu Val Asp Ser Gln Ser
           130            135            140

cag gag gat att tca ctg ctt tta caa ctt gtt caa aat aag gat ttc 479
Gln Glu Asp Ile Ser Leu Leu Leu Gln Leu Val Gln Asn Lys Asp Phe
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cag aat gca ttt aag ata cac aat gcc atc aca gta cat atg aac aag 527
Gln Asn Ala Phe Lys Ile His Asn Ala Ile Thr Val His Met Asn Lys
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gcc agt cct cca ttt cct ctt atc tcc aac gca caa gat ctt gct caa 575
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gag gta caa act gtt ttg aag cca gtt cat cat aag gaa gga caa gaa 623
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Glu Arg Val Tyr Glu Ser Ile Gly Gln Tyr Gly Gly Glu Thr Val Lys	
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260 265 270	
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Arg Asn Glu Met Asp Ser Val Ile Ile Ser Arg Ile Val Lys Gly Gly	
275 280 285	
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Ala Ala Glu Lys Ser Gly Leu Leu His Glu Gly Asp Glu Val Leu Glu	
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Ala His Phe Asp Tyr Asp Pro Ser Asp Asp Pro Tyr Val Pro Cys Arg	
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Glu Leu Gly Leu Ser Phe Gln Lys Gly Asp Ile Leu His Val Ile Ser	
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Gln Glu Asp Pro Asn Trp Trp Gln Ala Tyr Arg Glu Gly Asp Glu Asp	
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Asn Gln Pro Leu Ala Gly Leu Val Pro Gly Lys Ser Phe Gln Gln Gln	
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agg gaa gcc atg aaa caa acc ata gaa gaa gat aag gag cca gaa aaa	1295
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Ser Gly Lys Leu Trp Cys Ala Lys Lys Asn Lys Lys Lys Arg Lys Lys	
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Leu Thr Tyr Glu Glu Met Ser Leu Tyr His Gln Pro Ala Asn Arg Lys	
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Arg Pro Ile Ile Leu Ile Gly Pro Gln Asn Cys Gly Gln Asn Glu Leu	
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Pro His Thr Thr Arg Ser Arg Arg Asp Gln Glu Val Ala Gly Arg Asp	
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Tyr His Phe Val Ser Arg Gln Ala Phe Glu Ala Asp Ile Ala Ala Gly	
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Lys Phe Ile Glu His Gly Glu Phe Glu Lys Asn Leu Tyr Gly Thr Ser	
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Ile Asp Ser Val Arg Gln Val Ile Asn Ser Gly Lys Ile Cys Leu Leu	
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Ser Leu Arg Thr Gln Ser Leu Lys Thr Leu Arg Asn Ser Asp Leu Lys	
580 585 590	
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Asp Thr Ala Ile Val Asn Ser Asp Leu Asp Lys Ala Tyr Gln Glu Leu	
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ctt agg tta att aac aaa ctt gat act gaa cct cag tgg gta cca tcc	2015



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 Thr Ala Leu Leu Asn Thr Pro His Ile Gln Ala Leu Leu Leu Ala His  
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 Asp Lys Val Ala Glu Gln Glu Met Gln Leu Glu Pro Ile Thr Asp Glu  
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 Gln Ile Lys Pro Pro Pro Ala Lys Glu Thr Val Ile His Val Lys Ala  
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 His Phe Asp Tyr Asp Pro Ser Asp Asp Pro Tyr Val Pro Cys Arg Glu  
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Phe Ile Glu His Gly Glu Phe Glu Lys Asn Leu Tyr Gly Thr Ser Ile  
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 Asp Ser Val Arg Gln Val Ile Asn Ser Gly Lys Ile Cys Leu Leu Ser  
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 580 585 590  
 Tyr Ile Ile Phe Ile Ala Pro Pro Ser Gln Glu Arg Leu Arg Ala Leu  
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 Ile Glu Lys Thr Arg Glu Met Glu Gln Asn Asn Gly His Tyr Phe Asp  
 625 630 635 640  
 Thr Ala Ile Val Asn Ser Asp Leu Asp Lys Ala Tyr Gln Glu Leu Leu  
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 Ala Ile Ser Pro Thr His Pro Gly Glu Gly Leu Val Leu Arg Pro Leu  
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 Cys Thr Ala Asp Leu Asn Arg Gly Phe Phe Lys Val Leu Gly Gln Leu  
 45 50 55 60  
 aca gag act gga gtt gtc agc cct gaa caa ttt atg gaa tct ttt gag 242  
 Thr Glu Thr Gly Val Val Ser Pro Glu Gln Phe Met Glu Ser Phe Glu  
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cat atg aag aaa tct ggg gat tat tat gtt aca gtt gta gaa gat gtg 290  
His Met Lys Lys Ser Gly Asp Tyr Tyr Val Thr Val Val Glu Asp Val  
80 85 90  
act cta gga cag att gtt gct acg gca act ctg att ata gaa cat aaa 338  
Thr Leu Gly Gln Ile Val Ala Thr Ala Thr Leu Ile Ile Glu His Lys  
95 100 105  
ttc atc cat tcc tgt gct aag aga gga aga gta gaa gat gtt gtt gtt 386  
Phe Ile His Ser Cys Ala Lys Arg Gly Arg Val Glu Asp Val Val Val  
110 115 120  
agt gat gaa tgc aga gga aag cag ctt ggc aaa ttg tta tta tca acc 434  
Ser Asp Glu Cys Arg Gly Lys Gln Leu Gly Lys Leu Leu Leu Ser Thr  
125 130 135 140  
ctt act ttg cta agc aag aaa ctg aac tgt tac aag att acc ctt gaa 482  
Leu Thr Leu Leu Ser Lys Lys Leu Asn Cys Tyr Lys Ile Thr Leu Glu  
145 150 155  
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Cys Leu Pro Gln Asn Val Gly Phe Tyr Lys Lys Phe Gly Tyr Thr Val  
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35 40 45  
Leu Asn Arg Gly Phe Phe Lys Val Leu Gly Gln Leu Thr Glu Thr Gly  
50 55 60  
Val Val Ser Pro Glu Gln Phe Met Glu Ser Phe Glu His Met Lys Lys  
65 70 75 80  
Ser Gly Asp Tyr Tyr Val Thr Val Val Glu Asp Val Thr Leu Gly Gln  
85 90 95  
Ile Val Ala Thr Ala Thr Leu Ile Ile Glu His Lys Phe Ile His Ser



aga gga aag cag ctt ggc aaa ttg tta tta tca acc ctt act ttg cta 432  
 Arg Gly Lys Gln Leu Gly Lys Leu Leu Leu Ser Thr Leu Thr Leu Leu  
 130 135 140

agc aag aaa ctg aac tgt tac aag att acc ctt gaa tgt cta cca caa 480  
 Ser Lys Lys Leu Asn Cys Tyr Lys Ile Thr Leu Glu Cys Leu Pro Gln  
 145 150 155 160

aat gtt ggt ttc tat aaa aag ttt gga tat act gta tct gaa gaa aac 528  
 Asn Val Gly Phe Tyr Lys Lys Phe Gly Tyr Thr Val Ser Glu Glu Asn  
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 35 40 45

Leu Asn Arg Gly Phe Phe Lys Val Leu Gly Gln Leu Thr Glu Thr Gly  
 50 55 60

Val Val Ser Pro Glu Gln Phe Met Lys Ser Phe Glu His Met Lys Lys  
 65 70 75 80

Ser Gly Asp Tyr Tyr Val Thr Val Val Glu Asp Val Thr Leu Gly Gln  
 85 90 95

Ile Val Ala Thr Ala Thr Leu Ile Ile Glu His Lys Phe Ile His Ser  
 100 105 110

Cys Ala Lys Arg Gly Arg Val Glu Asp Val Val Val Ser Asp Glu Cys  
 115 120 125

Arg Gly Lys Gln Leu Gly Lys Leu Leu Leu Ser Thr Leu Thr Leu Leu  
 130 135 140

Ser Lys Lys Leu Asn Cys Tyr Lys Ile Thr Leu Glu Cys Leu Pro Gln  
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gag atg cag gaa att tta cct gga ttg ttc tta ggc cca tat tca tct      145
Glu Met Gln Glu Ile Leu Pro Gly Leu Phe Leu Gly Pro Tyr Ser Ser
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gct atg aaa agc aag cta cct gta cta cag aaa cat gga ata acc cat      193
Ala Met Lys Ser Lys Leu Pro Val Leu Gln Lys His Gly Ile Thr His
                45                50                55

ata ata tgc ata cga caa aat att gaa gca aac ttt att aaa cca aac      241
Ile Ile Cys Ile Arg Gln Asn Ile Glu Ala Asn Phe Ile Lys Pro Asn
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ttt cag cag tta ttt agg tat tta gtc ctg gat att gca gat aat cca      289
Phe Gln Gln Leu Phe Arg Tyr Leu Val Leu Asp Ile Ala Asp Asn Pro
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gtt gaa aat ata ata cgt ttt ttc cct atg act aag gaa ttt att gat      337
Val Glu Asn Ile Ile Arg Phe Phe Pro Met Thr Lys Glu Phe Ile Asp
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ggg agc tta caa atg gga ggt aaa gtt ctt gtg cat gga aat gca ggg      385
Gly Ser Leu Gln Met Gly Gly Lys Val Leu Val His Gly Asn Ala Gly
                110                115                120

atc tcc aga agt gca gcc ttt gtt att gca tac att atg gaa aca ttt      433
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gga atg aag tac agg gat gct ttt gct tat gtt caa gaa aga aga ttt      481
Gly Met Lys Tyr Arg Asp Ala Phe Ala Tyr Val Gln Glu Arg Arg Phe
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tgt att aat cct aat gct gga ttt gtc cat caa ctt cag gaa tat gaa      529
Cys Ile Asn Pro Asn Ala Gly Phe Val His Gln Leu Gln Glu Tyr Glu
                160                165                170

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Leu Pro Val Leu Gln Lys His Gly Ile Thr His Ile Ile Cys Ile Arg			
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Gln Asn Ile Glu Ala Asn Phe Ile Lys Pro Asn Phe Gln Gln Leu Phe			
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Arg Tyr Leu Val Leu Asp Ile Ala Asp Asn Pro Val Glu Asn Ile Ile			
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Arg Phe Phe Pro Met Thr Lys Glu Phe Ile Asp Gly Ser Leu Gln Met			
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Gly Gly Lys Val Leu Val His Gly Asn Ala Gly Ile Ser Arg Ser Ala			
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Ala Phe Val Ile Ala Tyr Ile Met Glu Thr Phe Gly Met Lys Tyr Arg			
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Asp Ala Phe Ala Tyr Val Gln Glu Arg Arg Phe Cys Ile Asn Pro Asn			
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Ala Gly Phe Val His Gln Leu Gln Glu Tyr Glu Ala Ile Tyr Leu Ala			
165	170	175	
Lys Leu Thr Ile Gln Met Met Ser Pro Leu Gln Ile Glu Arg Ser Leu			
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tta ggc cca tat tca tct gct atg aaa agc aag cta cct gta cta cag 198			
Leu Gly Pro Tyr Ser Ser Ala Met Lys Ser Lys Leu Pro Val Leu Gln			
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aaa cat gga ata acc cat ata ata tgc ata cga caa aat att gaa gca 246			
Lys His Gly Ile Thr His Ile Ile Cys Ile Arg Gln Asn Ile Glu Ala			
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Asn Phe Ile Lys Pro Asn Phe Gln Gln Leu Phe Arg Tyr Leu Val Leu			
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Thr Lys Glu Phe Ile Asp Gly Ser Leu Gln Met Gly Gly Lys Val Leu			
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Val His Gly Asn Ala Gly Ile Ser Arg Ser Ala Ala Phe Val Ile Ala			
	120	125	130
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Tyr Ile Met Glu Thr Phe Gly Met Lys Tyr Arg Asp Ala Phe Ala Tyr			
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Val Gln Glu Arg Arg Phe Cys Ile Asn Pro Asn Ala Gly Phe Val His			
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acc aca ggc agt ttg aag aga aca cat gaa gaa gag gat gat ttt gga 678  
 Thr Thr Gly Ser Leu Lys Arg Thr His Glu Glu Glu Asp Asp Phe Gly  
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Leu Pro Val Leu Gln Lys His Gly Ile Thr His Ile Ile Cys Ile Arg  
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Gln Asn Ile Glu Ala Asn Phe Ile Lys Pro Asn Phe Gln Gln Leu Phe  
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Arg Tyr Leu Val Leu Asp Ile Ala Asp Asn Pro Val Glu Asn Ile Ile  
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Arg Phe Phe Pro Met Thr Lys Glu Phe Ile Asp Gly Ser Leu Gln Met  
 100 105 110

Gly Gly Lys Val Leu Val His Gly Asn Ala Gly Ile Ser Arg Ser Ala  
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Ala Phe Val Ile Ala Tyr Ile Met Glu Thr Phe Gly Met Lys Tyr Arg  
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Asp Ala Phe Ala Tyr Val Gln Glu Arg Arg Phe Cys Ile Asn Pro Asn  
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Ala Gly Phe Val His Gln Leu Gln Glu Tyr Glu Ala Ile Tyr Leu Ala  
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Lys Leu Thr Ile Gln Met Met Ser Pro Leu Gln Ile Glu Arg Ser Leu

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Ser Val His Ser Gly Thr Thr Gly Ser Leu Lys Arg Thr His Glu Glu						
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ctg gag ttc cct tcc ctt cca cag tgc aag gaa gac gcc gag gag tgg						101
Leu Glu Phe Pro Ser Leu Pro Gln Cys Lys Glu Asp Ala Glu Glu Trp						
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acc tac cct atg aga cga gag atg cag gaa att tta cct gga ttg ttc						149
Thr Tyr Pro Met Arg Arg Glu Met Gln Glu Ile Leu Pro Gly Leu Phe						
	25		30		35	
tta ggc cca tat tca tct gct atg aaa agc aag cta cct gta cta cag						197
Leu Gly Pro Tyr Ser Ser Ala Met Lys Ser Lys Leu Pro Val Leu Gln						
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aaa cat ttg gaa tgaagtacag agatgctttt gcttatgttc aagaaagaag						249
Lys His Leu Glu						
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acc tac cct atg aga cga gag atg cag gaa att tta cct gga ttg ttc 149  
Thr Tyr Pro Met Arg Arg Glu Met Gln Glu Ile Leu Pro Gly Leu Phe  
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tta ggc cca tat tca tct gct atg aaa agc aag cta cct gta cta cag 197  
Leu Gly Pro Tyr Ser Ser Ala Met Lys Ser Lys Leu Pro Val Leu Gln  
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aaa cat gga ata acc cat ata ata tgc ata cga caa aat att gaa gca 245  
Lys His Gly Ile Thr His Ile Ile Cys Ile Arg Gln Asn Ile Glu Ala  
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aac ttt att aaa cca aac ttt cag cag tta ttt aga cta agg aat tta 293  
Asn Phe Ile Lys Pro Asn Phe Gln Gln Leu Phe Arg Leu Arg Asn Leu  
70 75 80 85

ttg atg gga gct tac aaa tgg gag gaa aag ttc ttg tgc atg gaa atg 341  
Leu Met Gly Ala Tyr Lys Trp Glu Glu Lys Phe Leu Cys Met Glu Met

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Gln Gly Ser Pro Glu Val Gln Pro Leu Leu Leu His Thr Leu Trp Lys			
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cat ttg gaa tgaagtacag agatgctttt gcttatgttc aagaaagaag			438
His Leu Glu			
120			
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aagccatcta cctagcaaaa ttaacaatac agatgatgtc accactccag			538
atagaaaggc cattatctgt tcattctggc accacaggca gtttgaagag			588
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Leu Pro Val Leu Gln Lys His Gly Ile Thr His Ile Ile Cys Ile Arg			
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Gln Asn Ile Glu Ala Asn Phe Ile Lys Pro Asn Phe Gln Gln Leu Phe			
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Arg Leu Arg Asn Leu Leu Met Gly Ala Tyr Lys Trp Glu Glu Lys Phe			
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Met Lys Thr Gln Pro Pro Leu Ser Arg Met Asn Arg Glu Glu Leu Glu
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gac agt ttc ttt cga ctt cgc gaa gat cac atg ttg gtg aag gag ctt      145
Asp Ser Phe Phe Arg Leu Arg Glu Asp His Met Leu Val Lys Glu Leu
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tct tgg aag caa cag gat gag atc aaa agg ctg agg acc acc ttg ctg      193
Ser Trp Lys Gln Gln Asp Glu Ile Lys Arg Leu Arg Thr Thr Leu Leu
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cgg ttg acc gct gct ggc cgg gac ctg cgg gtc gcg gag gag gcg gcg      241
Arg Leu Thr Ala Ala Gly Arg Asp Leu Arg Val Ala Glu Glu Ala Ala
              60              65              70

ccg ctc tcg gag acc gca agg cgc ggg cag aag gcg gga tgg cgg cag      289
Pro Leu Ser Glu Thr Ala Arg Arg Gly Gln Lys Ala Gly Trp Arg Gln
              75              80              85

cgc ctc tcc atg cac cag cgc ccc cag atg cac cga ctg caa ggg cat      337
Arg Leu Ser Met His Gln Arg Pro Gln Met His Arg Leu Gln Gly His
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ttc cac tgc gtc ggc cct gcc agc ccc cgc cgc gcc cag cct cgc gtc      385
Phe His Cys Val Gly Pro Ala Ser Pro Arg Arg Ala Gln Pro Arg Val
              110              115              120

caa gtg gga cac aga cag ctc cac aca gcc ggt gca ccg gtg ccg gag      433
Gln Val Gly His Arg Gln Leu His Thr Ala Gly Ala Pro Val Pro Glu
              125              130              135

aaa ccc aag agg ggt agg gac agg ctg agc tac aca gcc cct cca tcg      481
Lys Pro Lys Arg Gly Arg Asp Arg Leu Ser Tyr Thr Ala Pro Pro Ser
              140              145              150

ttt aag gag cat gcg aca aat gaa aac aga ggt gaa gta gcc agt aaa      529
Phe Lys Glu His Ala Thr Asn Glu Asn Arg Gly Glu Val Ala Ser Lys
              155              160              165

ccc agt gaa ctg gcc cac atc atg gcc agc aat acc atg caa gtg gaa      577

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Glu	Gln	Arg	Ser	Ser	Leu	Glu	Cys	Ala	Gln	Lys	Ala	Ala	Glu	Leu	Arg		
			205					210					215				
gct tcc att aaa gag aag gta gag ctg att cga ctt aag aag ctc tta 721																	
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His	Glu	Arg	Asn	Ala	Ser	Leu	Val	Met	Thr	Lys	Ala	Gln	Leu	Thr	Glu		
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Val	Gln	Glu	Val	Ser	Cys	His	Leu	Leu	Thr	Gln	Asn	Gln	Gly	Ile	Leu		
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agt gca gcc cat gag gcc ctc ctc aag caa gtg aat gag ctc agg gca 865																	
Ser	Ala	Ala	His	Glu	Ala	Leu	Leu	Lys	Gln	Val	Asn	Glu	Leu	Arg	Ala		
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gaa gat gtg tct atc ttg cag atg act ctg aag gag ttt cag gag aga 961																	
Glu	Asp	Val	Ser	Ile	Leu	Gln	Met	Thr	Leu	Lys	Glu	Phe	Gln	Glu	Arg		
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gtt gaa gat ttg gaa aaa gaa cga aaa ttg ctg aat gac aat tat gac 1009																	
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Thr Ile Ser Gln Pro Pro Asp Arg Gln Ser Glu Pro Ala Thr His Pro			
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Ala Val Leu Gln Glu Asn Thr Gln Ile Gln Pro Ser Glu Pro Lys Asn			
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caa gaa gaa aag aaa ctg tcc cag gtg cta aat gag ttg caa gta tca			1393
Gln Glu Glu Lys Lys Leu Ser Gln Val Leu Asn Glu Leu Gln Val Ser			
445	450		455
cac gca gag acc aca ttg gaa cta gaa aag acc agg gac atg ctt att			1441
His Ala Glu Thr Thr Leu Glu Leu Glu Lys Thr Arg Asp Met Leu Ile			
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Leu Gln Arg Lys Ile Asn Val Cys Tyr Gln Glu Glu Leu Glu Ala Met			
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Met Thr Lys Ala Asp Asn Asp Asn Arg Asp His Lys Glu Lys Leu Glu			
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agg ttg act cga cta cta gac ctc aag aat aac cgt atc aag cag ctg			1585
Arg Leu Thr Arg Leu Leu Asp Leu Lys Asn Asn Arg Ile Lys Gln Leu			
510	515		520
gaa gaa cag ctc aaa gat gtt gct tat ggc acc cga ccg ttg tcg tta			1633
Glu Glu Gln Leu Lys Asp Val Ala Tyr Gly Thr Arg Pro Leu Ser Leu			
525	530		535
tgt ttg gaa aca ctg cca gcc cat gga gat gag gat aaa gtg gat att			1681
Cys Leu Glu Thr Leu Pro Ala His Gly Asp Glu Asp Lys Val Asp Ile			
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Ser Leu Leu His Gln Gly Glu Asn Leu Phe Glu Leu His Ile His Gln			
555	560		565
gcc ttc ctg aca tct gcc gcc cta gct cag gct gga gat acc caa cct			1777
Ala Phe Leu Thr Ser Ala Ala Leu Ala Gln Ala Gly Asp Thr Gln Pro			
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acc act ttc tgc acc tat tcc ttc tat gac ttt gaa acc cac tgt acc			1825
Thr Thr Phe Cys Thr Tyr Ser Phe Tyr Asp Phe Glu Thr His Cys Thr			
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cca tta tct gtg ggg cca cag ccc ctc tat gac ttc acc tcc cag tat			1873
Pro Leu Ser Val Gly Pro Gln Pro Leu Tyr Asp Phe Thr Ser Gln Tyr			
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Val Met Glu Thr Asp Ser Leu Phe Leu His Tyr Leu Gln Glu Ala Ser			
620	625		630



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Asp Leu Arg Val Ala Glu Glu Ala Ala Pro Leu Ser Glu Thr Ala Arg  
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 Glu Asn Arg Gly Glu Val Ala Ser Lys Pro Ser Glu Leu Ala His Ile  
 165 170 175  
 Met Ala Ser Asn Thr Met Gln Val Glu Glu Pro Pro Lys Ser Pro Glu  
 180 185 190  
 Lys Met Trp Pro Lys Asp Glu Asn Phe Glu Gln Arg Ser Ser Leu Glu  
 195 200 205  
 Cys Ala Gln Lys Ala Ala Glu Leu Arg Ala Ser Ile Lys Glu Lys Val  
 210 215 220  
 Glu Leu Ile Arg Leu Lys Lys Leu Leu His Glu Arg Asn Ala Ser Leu  
 225 230 235 240  
 Val Met Thr Lys Ala Gln Leu Thr Glu Val Gln Glu Val Ser Cys His  
 245 250 255  
 Leu Leu Thr Gln Asn Gln Gly Ile Leu Ser Ala Ala His Glu Ala Leu  
 260 265 270  
 Leu Lys Gln Val Asn Glu Leu Arg Ala Glu Leu Lys Glu Glu Ser Lys  
 275 280 285  
 Lys Ala Val Ser Leu Lys Ser Gln Leu Glu Asp Val Ser Ile Leu Gln  
 290 295 300  
 Met Thr Leu Lys Glu Phe Gln Glu Arg Val Glu Asp Leu Glu Lys Glu  
 305 310 315 320  
 Arg Lys Leu Leu Asn Asp Asn Tyr Asp Lys Leu Leu Glu Ser Ser Asp  
 325 330 335  
 Ser Ser Ser Gln Pro His Trp Ser Asn Glu Leu Ile Ala Glu Gln Leu  
 340 345 350  
 Gln Gln Gln Val Ser Gln Leu Gln Asp Gln Leu Asp Ala Glu Leu Glu  
 355 360 365

Asp Lys Arg Lys Val Leu Leu Glu Leu Ser Arg Glu Lys Ala Gln Asn  
 370 375 380

Glu Asp Leu Lys Leu Glu Val Thr Asn Ile Leu Gln Lys His Lys Gln  
 385 390 395 400

Glu Val Glu Leu Leu Gln Asn Ala Ala Thr Ile Ser Gln Pro Pro Asp  
 405 410 415

Arg Gln Ser Glu Pro Ala Thr His Pro Ala Val Leu Gln Glu Asn Thr  
 420 425 430

Gln Ile Gln Pro Ser Glu Pro Lys Asn Gln Glu Glu Lys Lys Leu Ser  
 435 440 445

Gln Val Leu Asn Glu Leu Gln Val Ser His Ala Glu Thr Thr Leu Glu  
 450 455 460

Leu Glu Lys Thr Arg Asp Met Leu Ile Leu Gln Arg Lys Ile Asn Val  
 465 470 475 480

Cys Tyr Gln Glu Glu Leu Glu Ala Met Met Thr Lys Ala Asp Asn Asp  
 485 490 495

Asn Arg Asp His Lys Glu Lys Leu Glu Arg Leu Thr Arg Leu Leu Asp  
 500 505 510

Leu Lys Asn Asn Arg Ile Lys Gln Leu Glu Glu Gln Leu Lys Asp Val  
 515 520 525

Ala Tyr Gly Thr Arg Pro Leu Ser Leu Cys Leu Glu Thr Leu Pro Ala  
 530 535 540

His Gly Asp Glu Asp Lys Val Asp Ile Ser Leu Leu His Gln Gly Glu  
 545 550 555 560

Asn Leu Phe Glu Leu His Ile His Gln Ala Phe Leu Thr Ser Ala Ala  
 565 570 575

Leu Ala Gln Ala Gly Asp Thr Gln Pro Thr Thr Phe Cys Thr Tyr Ser  
 580 585 590

Phe Tyr Asp Phe Glu Thr His Cys Thr Pro Leu Ser Val Gly Pro Gln  
 595 600 605

Pro Leu Tyr Asp Phe Thr Ser Gln Tyr Val Met Glu Thr Asp Ser Leu  
 610 615 620

Phe Leu His Tyr Leu Gln Glu Ala Ser Ala Arg Leu Asp Ile His Gln  
 625 630 635 640

Ala Met Ala Ser Glu His Ser Thr Leu Ala Ala Gly Trp Ile Cys Phe  
 645 650 655

Asp Arg Val Leu Glu Thr Val Glu Lys Val His Gly Leu Ala Thr Leu  
 660 665 670

Ile Gly Ala Gly Gly Glu Glu Phe Gly Val Leu Glu Tyr Trp Met Arg  
 675 680 685

Leu Arg Phe Pro Ile Lys Pro Ser Leu Gln Ala Cys Asn Lys Arg Lys  
 690 695 700

Lys Ala Gln Val Tyr Leu Ser Thr Asp Val Leu Gly Gly Arg Lys Ala  
 705 710 715 720

Gln Glu Glu Glu Val Arg Ser Glu Ser Trp Glu Pro Gln Asn Glu Leu  
 725 730 735

Trp Ile Glu Ile Thr Lys Cys Cys Gly Leu Arg Ser Arg Trp Leu Gly  
 740 745 750

Thr Gln Pro Ser Pro Tyr Ala Val Tyr Arg Phe Phe Thr Phe Ser Asp  
 755 760 765

His Asp Thr Ala Ile Ile Pro Ala Ser Asn Asn Pro Tyr Phe Arg Asp  
 770 775 780

Gln Ala Arg Phe Pro Val Leu Val Thr Ser Asp Leu Asp His Tyr Leu  
 785 790 795 800

Arg Arg Glu Ala Leu Ser Ile His Val Phe Asp Asp Glu Asp Leu Glu  
 805 810 815

Pro Gly Ser Tyr Leu Gly Arg Ala Arg Val Pro Leu Leu Pro Leu Ala  
 820 825 830

Lys Asn Glu Ser Ile Lys Gly Asp Phe Asn Leu Thr Asp Pro Ala Glu  
 835 840 845

Lys Pro Asn Gly Ser Ile Gln Val Gln Leu Asp Trp Lys Phe Pro Tyr  
 850 855 860

Ile Pro Pro Glu Ser Phe Leu Lys Pro Glu Ala Gln Thr Lys Gly Lys  
 865 870 875 880

Asp Thr Lys Asp Ser Ser Lys Ile Ser Ser Glu Glu Glu Lys Ala Ser  
 885 890 895

Phe Pro Ser Gln Asp Gln Met Ala Ser Pro Glu Val Pro Ile Glu Ala  
 900 905 910

Gly Gln Tyr Arg Ser Lys Arg Lys Pro Pro His Gly Gly Glu Arg Lys  
 915 920 925

Glu Lys Glu His Gln Val Val Ser Tyr Ser Arg Arg Lys His Gly Lys  
 930 935 940

Arg Ile Gly Val Gln Gly Lys Asn Arg Met Glu Tyr Leu Ser Leu Asn  
 945 950 955 960

Ile Leu Asn Gly Asn Thr Leu Lys Gln Val Asn Tyr Thr Glu Trp Lys  
 965 970 975

Phe Ser Glu Thr Asn Ser Phe Ile Gly Asp Gly Phe Lys Asn Gln His  
980 985 990  
Glu Glu Glu Glu Met Thr Leu Ser His Ser Ala Leu Lys Gln Lys Glu  
995 000 005  
Pro Leu His Pro Val Asn Asp Lys Glu Ser Ser Glu Gln Gly Ser Glu  
010 015 020  
Val Ser Glu Ala Gln Thr Thr Asp Ser Asp Asp Val Ile Val Pro Pro  
025 030 035 040  
Met Ser Gln Lys Tyr Pro Lys Ala Asp Ser Glu Lys Met Cys Ile Glu  
045 050 055  
Ile Val Ser Leu Ala Phe Tyr Pro Glu Ala Glu Val Met Ser Asp Glu  
060 065 070  
Asn Ile Lys Gln Val Tyr Val Glu Tyr Lys Phe Tyr Asp Leu Pro Leu  
075 080 085  
Ser Glu Thr Glu Thr Pro Val Ser Leu Arg Lys Pro Arg Ala Gly Glu  
090 095 100  
Glu Ile His Phe His Phe Ser Lys Val Ile Asp Leu Asp Pro Gln Glu  
105 110 115 120  
Gln Gln Gly Arg Arg Arg Phe Leu Phe Asp Met Leu Asn Gly Gln Asp  
125 130 135  
Pro Asp Gln Gly Gln Leu Lys Phe Thr Val Val Ser Asp Pro Leu Asp  
140 145 150  
Glu Glu Lys Lys Glu Cys Glu Glu Val Gly Tyr Ala Tyr Leu Gln Leu  
155 160 165  
Trp Gln Ile Leu Glu Ser Gly Arg Asp Ile Leu Glu Gln Glu Leu Asp  
170 175 180  
Val Val Ser Pro Glu Asp Leu Ala Thr Pro Ile Gly Arg Leu Lys Val  
185 190 195 200  
Ser Leu Gln Ala Ala Ala Val Leu His Ala Ile Tyr Lys Glu Met Thr  
205 210 215  
Glu Asp Leu Phe Ser  
220

<210>39

<211>678

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(14) .. (623)

<400>39

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	Met Val Ser Thr Tyr Arg Val Ala Val Leu Gly Ala	
	1 5 10	
cga ggt gtg ggc aag agt gcc atc gtg cgc cag ttc ttg tac aac gag	97	
Arg Gly Val Gly Lys Ser Ala Ile Val Arg Gln Phe Leu Tyr Asn Glu		
	15 20 25	
ttc agc gag gtc tgc gtc ccc acc acc gcc cgc cgc ctt tac ctg cct	145	
Phe Ser Glu Val Cys Val Pro Thr Thr Ala Arg Arg Leu Tyr Leu Pro		
	30 35 40	
gct gtc gtc atg aac ggc cac gtg cac gac ctc cag atc ctc gac ttt	193	
Ala Val Val Met Asn Gly His Val His Asp Leu Gln Ile Leu Asp Phe		
	45 50 55 60	
cca ccc atc agc gcc ttc cct gtc aat acg ctc cag gag tgg gca gac	241	
Pro Pro Ile Ser Ala Phe Pro Val Asn Thr Leu Gln Glu Trp Ala Asp		
	65 70 75	
acc tgc tgc agg gga ctc cgg agt gtc cac gcc tac atc ctg gtc tac	289	
Thr Cys Cys Arg Gly Leu Arg Ser Val His Ala Tyr Ile Leu Val Tyr		
	80 85 90	
gac atc tgc tgc ttt gac agc ttt gag tac gtc aag acc atc cgc cag	337	
Asp Ile Cys Cys Phe Asp Ser Phe Glu Tyr Val Lys Thr Ile Arg Gln		
	95 100 105	
cag atc ctg gag acg agg gtg atc gga acc tca gag acg ccc atc atc	385	
Gln Ile Leu Glu Thr Arg Val Ile Gly Thr Ser Glu Thr Pro Ile Ile		
	110 115 120	
atc gtg ggc aac aag cgg gac ctg cag cgc gga cgc gtg atc ccg cgc	433	
Ile Val Gly Asn Lys Arg Asp Leu Gln Arg Gly Arg Val Ile Pro Arg		
	125 130 135 140	
tgg aac gtg tcg cac ctg gta cgc aag acc tgg aag tgc ggc tac gtg	481	
Trp Asn Val Ser His Leu Val Arg Lys Thr Trp Lys Cys Gly Tyr Val		
	145 150 155	
gaa tgc tcg gcc aag tac aac tgg cac atc ctg ctg ctc ttc agc gag	529	
Glu Cys Ser Ala Lys Tyr Asn Trp His Ile Leu Leu Leu Phe Ser Glu		
	160 165 170	
ctg ctc aag agc gtc ggc tgc gcc cgt tgc aag cac gtg cac gct gcc	577	
Leu Leu Lys Ser Val Gly Cys Ala Arg Cys Lys His Val His Ala Ala		
	175 180 185	
ctg cgc ttc cag ggc gcg ctg cgc cgc aac cgc tgc gcc atc atg	622	
Leu Arg Phe Gln Gly Ala Leu Arg Arg Asn Arg Cys Ala Ile Met		
	190 195 200	
tgacgcctgc gcgccctcg ggctgcaccg gcactggccg agcggagggc	672	
ggggcc	678	



<210>40  
 <211>203  
 <212>PRT  
 <213> Homo sapiens

<400>40  
 Met Val Ser Thr Tyr Arg Val Ala Val Leu Gly Ala Arg Gly Val Gly  
           1                  5                  10                  15  
 Lys Ser Ala Ile Val Arg Gln Phe Leu Tyr Asn Glu Phe Ser Glu Val  
                   20                  25                  30  
 Cys Val Pro Thr Thr Ala Arg Arg Leu Tyr Leu Pro Ala Val Val Met  
           35                  40                  45  
 Asn Gly His Val His Asp Leu Gln Ile Leu Asp Phe Pro Pro Ile Ser  
           50                  55                  60  
 Ala Phe Pro Val Asn Thr Leu Gln Glu Trp Ala Asp Thr Cys Cys Arg  
           65                  70                  75                  80  
 Gly Leu Arg Ser Val His Ala Tyr Ile Leu Val Tyr Asp Ile Cys Cys  
                   85                  90                  95  
 Phe Asp Ser Phe Glu Tyr Val Lys Thr Ile Arg Gln Gln Ile Leu Glu  
                   100                  105                  110  
 Thr Arg Val Ile Gly Thr Ser Glu Thr Pro Ile Ile Ile Val Gly Asn  
           115                  120                  125  
 Lys Arg Asp Leu Gln Arg Gly Arg Val Ile Pro Arg Trp Asn Val Ser  
           130                  135                  140  
 His Leu Val Arg Lys Thr Trp Lys Cys Gly Tyr Val Glu Cys Ser Ala  
           145                  150                  155                  160  
 Lys Tyr Asn Trp His Ile Leu Leu Leu Phe Ser Glu Leu Leu Lys Ser  
                   165                  170                  175  
 Val Gly Cys Ala Arg Cys Lys His Val His Ala Ala Leu Arg Phe Gln  
                   180                  185                  190  
 Gly Ala Leu Arg Arg Asn Arg Cys Ala Ile Met  
           195                  200

<210>41  
 <211>682  
 <212>DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222>(9)..(618)  
 <400>41

tgggagggc atg gtc tcc acc tac cgg gtg gcc gtg ctg ggg gcg cga	47
Met Val Ser Thr Tyr Arg Val Ala Val Leu Gly Ala Arg	
1 5 10	
ggt gtg ggc aag agt gcc atc gtg cgc cag ttc ttg tac aac gag ttc	95
Gly Val Gly Lys Ser Ala Ile Val Arg Gln Phe Leu Tyr Asn Glu Phe	
15 20 25	
agc gag gtc tgc gtc ccc acc acc gcc cgc cgc ctt tac ctg cct gct	143
Ser Glu Val Cys Val Pro Thr Thr Ala Arg Arg Leu Tyr Leu Pro Ala	
30 35 40 45	
gtc gtc atg aac ggc cac gtg cac gac ctc cag atc ctc gac ttt cca	191
Val Val Met Asn Gly His Val His Asp Leu Gln Ile Leu Asp Phe Pro	
50 55 60	
ccc atc agc gcc ttc cct gtc aat acg ctc cag gag tgg gca gac acc	239
Pro Ile Ser Ala Phe Pro Val Asn Thr Leu Gln Glu Trp Ala Asp Thr	
65 70 75	
tgc tgc agg gga ctc cgg agt gtc cac gcc tac atc ctg gtc tac gac	287
Cys Cys Arg Gly Leu Arg Ser Val His Ala Tyr Ile Leu Val Tyr Asp	
80 85 90	
atc tgc tgc ttt gac agc ttt gag tac gtc aag acc atc cgc cag cag	335
Ile Cys Cys Phe Asp Ser Phe Glu Tyr Val Lys Thr Ile Arg Gln Gln	
95 100 105	
atc ctg gag acg agg gtg atc gga acc tca gag acg ccc atc atc atc	383
Ile Leu Glu Thr Arg Val Ile Gly Thr Ser Glu Thr Pro Ile Ile Ile	
110 115 120 125	
gtg ggc aac aag cgg gac ctg cag cgc gga cgc gtg atc ccg cgc tgg	431
Val Gly Asn Lys Arg Asp Leu Gln Arg Gly Arg Val Ile Pro Arg Trp	
130 135 140	
aac gtg tgc cac ctg gta cgc aag acc tgg aag tgc ggc tac gtg gaa	479
Asn Val Ser His Leu Val Arg Lys Thr Trp Lys Cys Gly Tyr Val Glu	
145 150 155	
tgc tgc gcc aag tac aac tgg cac atc ctg ctg ctc ttc agc gag ctg	527
Cys Ser Ala Lys Tyr Asn Trp His Ile Leu Leu Leu Phe Ser Glu Leu	
160 165 170	
ctc aag agc gtc ggc tgc gcc cgt tgc aag cac gtg cac gct gcc ctg	575
Leu Lys Ser Val Gly Cys Ala Arg Cys Lys His Val His Ala Ala Leu	
175 180 185	
cgc ttc cag ggc gcg ctg cgc cgc aac cgc tgc gcc atc atg	617
Arg Phe Gln Gly Ala Leu Arg Arg Asn Arg Cys Ala Ile Met	
190 195 200	
tgacgcctgc gcgccctcg ggctgcaccg gcactggccg agcggagggc	667
actggccgag cggag	682

<210>42  
 <211>203  
 <212>PRT  
 <213> Homo sapiens

<400>42  
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           1                  5                  10                  15  
 Lys Ser Ala Ile Val Arg Gln Phe Leu Tyr Asn Glu Phe Ser Glu Val  
                   20                  25                  30  
 Cys Val Pro Thr Thr Ala Arg Arg Leu Tyr Leu Pro Ala Val Val Met  
           35                  40                  45  
 Asn Gly His Val His Asp Leu Gln Ile Leu Asp Phe Pro Pro Ile Ser  
           50                  55                  60  
 Ala Phe Pro Val Asn Thr Leu Gln Glu Trp Ala Asp Thr Cys Cys Arg  
           65                  70                  75                  80  
 Gly Leu Arg Ser Val His Ala Tyr Ile Leu Val Tyr Asp Ile Cys Cys  
                   85                  90                  95  
 Phe Asp Ser Phe Glu Tyr Val Lys Thr Ile Arg Gln Gln Ile Leu Glu  
           100                  105                  110  
 Thr Arg Val Ile Gly Thr Ser Glu Thr Pro Ile Ile Ile Val Gly Asn  
           115                  120                  125  
 Lys Arg Asp Leu Gln Arg Gly Arg Val Ile Pro Arg Trp Asn Val Ser  
           130                  135                  140  
 His Leu Val Arg Lys Thr Trp Lys Cys Gly Tyr Val Glu Cys Ser Ala  
           145                  150                  155                  160  
 Lys Tyr Asn Trp His Ile Leu Leu Leu Phe Ser Glu Leu Leu Lys Ser  
                   165                  170                  175  
 Val Gly Cys Ala Arg Cys Lys His Val His Ala Ala Leu Arg Phe Gln  
           180                  185                  190  
 Gly Ala Leu Arg Arg Asn Arg Cys Ala Ile Met  
           195                  200

<210>43  
 <211>1790  
 <212>DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222>(16)..(1720)  
 <400>43

tctccctccc gcgcg atg gcc tcg gcg ctg agc tat gtc tcc aag ttc	48
Met Ala Ser Ala Leu Ser Tyr Val Ser Lys Phe	
1 5 10	
aag tcc ttc gtg atc ttg ttc gtc acc ccg ctc ctg ctg ctg cca ctc	96
Lys Ser Phe Val Ile Leu Phe Val Thr Pro Leu Leu Leu Leu Pro Leu	
15 20 25	
gtc att ctg atg ccc gcc aag gtc agt tgt gcc tac gtc atc atc ctc	144
Val Ile Leu Met Pro Ala Lys Val Ser Cys Ala Tyr Val Ile Ile Leu	
30 35 40	
atg gcc att tac tgg tgc aca gaa gtc atc cct ctg gct gtc acc tct	192
Met Ala Ile Tyr Trp Cys Thr Glu Val Ile Pro Leu Ala Val Thr Ser	
45 50 55	
ctc atg cct gtc ttg ctt ttc cca ctc ttc cag att ctg gac tcc agg	240
Leu Met Pro Val Leu Leu Phe Pro Leu Phe Gln Ile Leu Asp Ser Arg	
60 65 70 75	
cag gtg tgt gtc cag tac atg aag gac acc aac atg ctg ttc ctg ggc	288
Gln Val Cys Val Gln Tyr Met Lys Asp Thr Asn Met Leu Phe Leu Gly	
80 85 90	
ggc ctc atc gtg gcc gtg gct gtg gag cgc tgg aac ctg cac aag agg	336
Gly Leu Ile Val Ala Val Ala Val Glu Arg Trp Asn Leu His Lys Arg	
95 100 105	
atc gcc ctg cgc acg ctc ctc tgg gtg ggg gcc aag cct gca cgg ctg	384
Ile Ala Leu Arg Thr Leu Leu Trp Val Gly Ala Lys Pro Ala Arg Leu	
110 115 120	
atg ctg ggc ttc atg ggc gtc aca gcc ctc ctg tcc atg tgg atc agt	432
Met Leu Gly Phe Met Gly Val Thr Ala Leu Leu Ser Met Trp Ile Ser	
125 130 135	
aac acg gca acc acg gcc atg atg gtg ccc atc gtg gag gcc ata ttg	480
Asn Thr Ala Thr Thr Ala Met Met Val Pro Ile Val Glu Ala Ile Leu	
140 145 150 155	
cag cag atg gaa gcc aca agc gca gcc acc gag gcc ggc ctg gag ctg	528
Gln Gln Met Glu Ala Thr Ser Ala Ala Thr Glu Ala Gly Leu Glu Leu	
160 165 170	
gtg gac aag ggc aag gcc aag gag ctg cca ggg agt caa gtg att ttt	576
Val Asp Lys Gly Lys Ala Lys Glu Leu Pro Gly Ser Gln Val Ile Phe	
175 180 185	
gaa ggc ccc act ctg ggg cag cag gaa gac caa gag cgg aag agg ttg	624
Glu Gly Pro Thr Leu Gly Gln Gln Glu Asp Gln Glu Arg Lys Arg Leu	
190 195 200	
tgt aag gcc atg acc ctg tgc atc tgc tac gcg gcc agc atc ggg ggc	672
Cys Lys Ala Met Thr Leu Cys Ile Cys Tyr Ala Ala Ser Ile Gly Gly	
205 210 215	
acc gcc acc ctg acc ggg acg gga ccc aac gtg gtg ctc ctg ggc cag	720

Thr Ala Thr Leu Thr Gly Thr Gly Pro Asn Val Val Leu Leu Gly Gln	
220 225 230 235	
atg aac gag ttg ttt cct gac agc aag gac ctc gtg aac ttt gct tcc	768
Met Asn Glu Leu Phe Pro Asp Ser Lys Asp Leu Val Asn Phe Ala Ser	
240 245 250	
tgg ttt gca ttt gcc ttt ccc aac atg ctg gtg atg ctg ctg ttc gcc	816
Trp Phe Ala Phe Ala Phe Pro Asn Met Leu Val Met Leu Leu Phe Ala	
255 260 265	
tgg ctg tgg ctc cag ttt gtt tac atg ttc tcc agt ttt aaa aag tcc	864
Trp Leu Trp Leu Gln Phe Val Tyr Met Phe Ser Ser Phe Lys Lys Ser	
270 275 280	
tgg ggc tgc ggg cta gag agc aag aaa aac gag aag gct gcc ctc aag	912
Trp Gly Cys Gly Leu Glu Ser Lys Lys Asn Glu Lys Ala Ala Leu Lys	
285 290 295	
gtg ctg cag gag gag tac cgg aag ctg ggg ccc ttg tcc ttc gcg gag	960
Val Leu Gln Glu Glu Tyr Arg Lys Leu Gly Pro Leu Ser Phe Ala Glu	
300 305 310 315	
atc aac gtg ctg atc tgc ttc ttc ctg ctg gtc atc ctg tgg ttc tcc	1008
Ile Asn Val Leu Ile Cys Phe Phe Leu Leu Val Ile Leu Trp Phe Ser	
320 325 330	
cga gac ccc ggc ttc atg ccc ggc tgg ctg act gtt gcc tgg gtg gag	1056
Arg Asp Pro Gly Phe Met Pro Gly Trp Leu Thr Val Ala Trp Val Glu	
335 340 345	
ggt gag aca aag tat gtc tcc gat gcc act gtg gcc atc ttt gtg gcc	1104
Gly Glu Thr Lys Tyr Val Ser Asp Ala Thr Val Ala Ile Phe Val Ala	
350 355 360	
acc ctg cta ttc att gtg cct tca cag aag ccc aag ttt aac ttc cgc	1152
Thr Leu Leu Phe Ile Val Pro Ser Gln Lys Pro Lys Phe Asn Phe Arg	
365 370 375	
agc cag act gag gaa ggt aag tct cct gtt ctg atc gcc ccc cct ccc	1200
Ser Gln Thr Glu Glu Gly Lys Ser Pro Val Leu Ile Ala Pro Pro Pro	
380 385 390 395	
ctg ctg gat tgg aag gta acc cag gag aaa gtg ccc tgg ggc atc gtg	1248
Leu Leu Asp Trp Lys Val Thr Gln Glu Lys Val Pro Trp Gly Ile Val	
400 405 410	
ctg cta cta ggg ggc gga ttt gct ctg gct aaa gga tcc gag gcc tcg	1296
Leu Leu Leu Gly Gly Gly Phe Ala Leu Ala Lys Gly Ser Glu Ala Ser	
415 420 425	
ggg ctg tcc gtg tgg atg ggg aag cag atg gag ccc ttg cac gca gtg	1344
Gly Leu Ser Val Trp Met Gly Lys Gln Met Glu Pro Leu His Ala Val	
430 435 440	
ccc ccg gca gcc atc acc ttg atc ttg tcc ttg ctc gtt gcc gtg ttc	1392
Pro Pro Ala Ala Ile Thr Leu Ile Leu Ser Leu Leu Val Ala Val Phe	

445	450	455	
act gag tgc aca agc aac gtg gcc acc acc acc ttg ttc ctg ccc atc			1440
Thr Glu Cys Thr Ser Asn Val Ala Thr Thr Thr Leu Phe Leu Pro Ile			
460	465	470	475
ttt gcc tcc atg tct cgc tcc atc ggc ctc aat ccg ctg tac atc atg			1488
Phe Ala Ser Met Ser Arg Ser Ile Gly Leu Asn Pro Leu Tyr Ile Met			
	480	485	490
ctg ccc tgt acc ctg agt gcc tcc ttt gcc ttc atg ttg cct gtg gcc			1536
Leu Pro Cys Thr Leu Ser Ala Ser Phe Ala Phe Met Leu Pro Val Ala			
	495	500	505
acc cct cca aat gcc atc gtg ttc acc tat ggg cac ctc aag gtt gct			1584
Thr Pro Pro Asn Ala Ile Val Phe Thr Tyr Gly His Leu Lys Val Ala			
	510	515	520
gac atg gtg aaa aca gga gtc ata atg aac ata att gga gtc ttc tgt			1632
Asp Met Val Lys Thr Gly Val Ile Met Asn Ile Ile Gly Val Phe Cys			
	525	530	535
gtg ttt ttg gct gtc aac acc tgg gga cgg gcc ata ttt gac ttg gat			1680
Val Phe Leu Ala Val Asn Thr Trp Gly Arg Ala Ile Phe Asp Leu Asp			
	540	545	550
cat ttc cct gac tgg gct aat gtg aca cat att gag act taggaagagc			1729
His Phe Pro Asp Trp Ala Asn Val Thr His Ile Glu Thr			
	560	565	
cacaagacca cacacacagc ccttacccctc ctcaggacta ccgaaccttc			1779
tggcacacct t			1790

<210>44  
 <211>568  
 <212>PRT  
 <213> Homo sapiens

<400>44  
 Met Ala Ser Ala Leu Ser Tyr Val Ser Lys Phe Lys Ser Phe Val Ile  
 1 5 10 15  
 Leu Phe Val Thr Pro Leu Leu Leu Leu Pro Leu Val Ile Leu Met Pro  
 20 25 30  
 Ala Lys Val Ser Cys Ala Tyr Val Ile Ile Leu Met Ala Ile Tyr Trp  
 35 40 45  
 Cys Thr Glu Val Ile Pro Leu Ala Val Thr Ser Leu Met Pro Val Leu  
 50 55 60  
 Leu Phe Pro Leu Phe Gln Ile Leu Asp Ser Arg Gln Val Cys Val Gln

65	70	75	80
Tyr Met Lys Asp Thr Asn Met Leu Phe Leu Gly Gly Leu Ile Val Ala	85	90	95
Val Ala Val Glu Arg Trp Asn Leu His Lys Arg Ile Ala Leu Arg Thr	100	105	110
Leu Leu Trp Val Gly Ala Lys Pro Ala Arg Leu Met Leu Gly Phe Met	115	120	125
Gly Val Thr Ala Leu Leu Ser Met Trp Ile Ser Asn Thr Ala Thr Thr	130	135	140
Ala Met Met Val Pro Ile Val Glu Ala Ile Leu Gln Gln Met Glu Ala	145	150	155
Thr Ser Ala Ala Thr Glu Ala Gly Leu Glu Leu Val Asp Lys Gly Lys	165	170	175
Ala Lys Glu Leu Pro Gly Ser Gln Val Ile Phe Glu Gly Pro Thr Leu	180	185	190
Gly Gln Gln Glu Asp Gln Glu Arg Lys Arg Leu Cys Lys Ala Met Thr	195	200	205
Leu Cys Ile Cys Tyr Ala Ala Ser Ile Gly Gly Thr Ala Thr Leu Thr	210	215	220
Gly Thr Gly Pro Asn Val Val Leu Leu Gly Gln Met Asn Glu Leu Phe	225	230	235
Pro Asp Ser Lys Asp Leu Val Asn Phe Ala Ser Trp Phe Ala Phe Ala	245	250	255
Phe Pro Asn Met Leu Val Met Leu Leu Phe Ala Trp Leu Trp Leu Gln	260	265	270
Phe Val Tyr Met Phe Ser Ser Phe Lys Lys Ser Trp Gly Cys Gly Leu	275	280	285
Glu Ser Lys Lys Asn Glu Lys Ala Ala Leu Lys Val Leu Gln Glu Glu	290	295	300
Tyr Arg Lys Leu Gly Pro Leu Ser Phe Ala Glu Ile Asn Val Leu Ile	305	310	315
Cys Phe Phe Leu Leu Val Ile Leu Trp Phe Ser Arg Asp Pro Gly Phe	325	330	335
Met Pro Gly Trp Leu Thr Val Ala Trp Val Glu Gly Glu Thr Lys Tyr	340	345	350
Val Ser Asp Ala Thr Val Ala Ile Phe Val Ala Thr Leu Leu Phe Ile	355	360	365
Val Pro Ser Gln Lys Pro Lys Phe Asn Phe Arg Ser Gln Thr Glu Glu			





25	30	35	
tac gtc atc atc ctc atg gcc att tac tgg tgc aca gaa gtc atc cct			195
Tyr Val Ile Ile Leu Met Ala Ile Tyr Trp Cys Thr Glu Val Ile Pro			
40	45	50	55
ctg gct gtc acc tct ctc atg cct gtc ttg ctt ttc cca ctc ttc cag			243
Leu Ala Val Thr Ser Leu Met Pro Val Leu Leu Phe Pro Leu Phe Gln			
60	65	70	
att ctg gac tcc agg cag gtg tgt gtc cag tac atg aag gac acc aac			291
Ile Leu Asp Ser Arg Gln Val Cys Val Gln Tyr Met Lys Asp Thr Asn			
75	80	85	
atg ctg ttc ctg ggc ggc ctc atc gtg gcc gtg gct gtg gag cgc tgg			339
Met Leu Phe Leu Gly Gly Leu Ile Val Ala Val Ala Val Glu Arg Trp			
90	95	100	
aac ctg cac aag agg atc gcc ctg cgc acg ctc ctc tgg gtg ggg gcc			387
Asn Leu His Lys Arg Ile Ala Leu Arg Thr Leu Leu Trp Val Gly Ala			
105	110	115	
aag cct gca cgg ctg atg ctg ggc ttc atg ggc gtc aca gcc ctc ctg			435
Lys Pro Ala Arg Leu Met Leu Gly Phe Met Gly Val Thr Ala Leu Leu			
120	125	130	135
tcc atg tgg atc agt aac acg gca acc acg gcc atg atg gtg ccc atc			483
Ser Met Trp Ile Ser Asn Thr Ala Thr Thr Ala Met Met Val Pro Ile			
140	145	150	
gtg gag gcc ata ttg cag cag atg gaa gcc aca agc gca gcc acc gag			531
Val Glu Ala Ile Leu Gln Gln Met Glu Ala Thr Ser Ala Ala Thr Glu			
155	160	165	
gcc ggc ctg gag gga caa ggt acc aca ata aac aac ctg aat gca ctg			579
Ala Gly Leu Glu Gly Gln Gly Thr Thr Ile Asn Asn Leu Asn Ala Leu			
170	175	180	
gag gat gat aca gtg aaa gca gta cta gga gga aag tgt gta gct ata			627
Glu Asp Asp Thr Val Lys Ala Val Leu Gly Gly Lys Cys Val Ala Ile			
185	190	195	
ata agc act tac gtc aaa aaa gta gaa aaa ctt caa ata aac aat cta			675
Ile Ser Thr Tyr Val Lys Lys Val Glu Lys Leu Gln Ile Asn Asn Leu			
200	205	210	215
atg aca cct ctt aaa aaa cta gaa aag caa gag caa cag gac cta ggg			723
Met Thr Pro Leu Lys Lys Leu Glu Lys Gln Glu Gln Gln Asp Leu Gly			
220	225	230	
cct ggc atc agg cct cag gac tct gcc cag tgc cag gaa gac caa gag			771
Pro Gly Ile Arg Pro Gln Asp Ser Ala Gln Cys Gln Glu Asp Gln Glu			
235	240	245	
cgg aag agg ttg tgt aag gcc atg acc ctg tgc atc tgc tac gcg gcc			819
Arg Lys Arg Leu Cys Lys Ala Met Thr Leu Cys Ile Cys Tyr Ala Ala			
250	255	260	

agc atc ggg ggc acc gcc acc ctg acc ggg acg gga ccc aac gtg gtg Ser Ile Gly Gly Thr Ala Thr Leu Thr Gly Thr Gly Pro Asn Val Val 265 270 275	867
ctc ctg ggc cag atg aac gag ttg ttt cct gac agc aag gac ctc gtg Leu Leu Gly Gln Met Asn Glu Leu Phe Pro Asp Ser Lys Asp Leu Val 280 285 290 295	915
aac ttt gct tcc tgg ttt gca ttt gcc ttt ccc aac atg ctg gtg atg Asn Phe Ala Ser Trp Phe Ala Phe Ala Phe Pro Asn Met Leu Val Met 300 305 310	963
ctg ctg ttc gcc tgg ctg tgg ctc cag ttt gtt tac atg ttc tcc agt Leu Leu Phe Ala Trp Leu Trp Leu Gln Phe Val Tyr Met Phe Ser Ser 315 320 325	1011
ttt aaa aag tcc tgg ggc tgc ggg cta gag agc aag aaa aac gag aag Phe Lys Lys Ser Trp Gly Cys Gly Leu Glu Ser Lys Lys Asn Glu Lys 330 335 340	1059
gct gcc ctc aag gtg ctg cag gag gag tac cgg aag ctg ggg ccc ttg Ala Ala Leu Lys Val Leu Gln Glu Glu Tyr Arg Lys Leu Gly Pro Leu 345 350 355	1107
tcc ttc gcg gag atc aac gtg ctg atc tgc ttc ttc ctg ctg gtc atc Ser Phe Ala Glu Ile Asn Val Leu Ile Cys Phe Phe Leu Leu Val Ile 360 365 370 375	1155
ctg tgg ttc tcc cga gac ccc ggc ttc atg ccc ggc tgg ctg act gtt Leu Trp Phe Ser Arg Asp Pro Gly Phe Met Pro Gly Trp Leu Thr Val 380 385 390	1203
gcc tgg gtg gag ggt gag aca aag tca gtc tcc gat gcc act gtg gcc Ala Trp Val Glu Gly Glu Thr Lys Ser Val Ser Asp Ala Thr Val Ala 395 400 405	1251
atc ttt gtg gcc acc ctg cta ttc att gtg cct tca cag aag ccc aag Ile Phe Val Ala Thr Leu Leu Phe Ile Val Pro Ser Gln Lys Pro Lys 410 415 420	1299
ttt aac ttc cgc agc cag act gag gaa ggt aag tct cct gtt ctg atc Phe Asn Phe Arg Ser Gln Thr Glu Glu Gly Lys Ser Pro Val Leu Ile 425 430 435	1347
gcc ccc cct ccc ctg ctg gat tgg aag gta acc cag gag aaa gtg ccc Ala Pro Pro Pro Leu Leu Asp Trp Lys Val Thr Gln Glu Lys Val Pro 440 445 450 455	1395
tgg ggc atc gtg ctg cta cta ggg ggc gga ttt gct ctg gct aaa gga Trp Gly Ile Val Leu Leu Leu Gly Gly Gly Phe Ala Leu Ala Lys Gly 460 465 470	1443
tcc gag gcc tcg ggg ctg tcc gtg tgg atg ggg aag cag atg gag ccc Ser Glu Ala Ser Gly Leu Ser Val Trp Met Gly Lys Gln Met Glu Pro 475 480 485	1491

ttg cac gca gtg ccc ccg gca gcc atc acc ttg atc ttg tcc ttg ctc 1539  
 Leu His Ala Val Pro Pro Ala Ala Ile Thr Leu Ile Leu Ser Leu Leu  
 490 495 500

gtt gcc gtg ttc act gag tgc aca agc aac gtg gcc acc acc acc ttg 1587  
 Val Ala Val Phe Thr Glu Cys Thr Ser Asn Val Ala Thr Thr Thr Leu  
 505 510 515

ttc ctg ccc atc ttt gcc tcc atg tct cgc tcc atc ggc ctc aat ccg 1635  
 Phe Leu Pro Ile Phe Ala Ser Met Ser Arg Ser Ile Gly Leu Asn Pro  
 520 525 530 535

ctg tac atc atg ctg ccc tgt acc ctg agt gcc tcc ttt gcc ttc atg 1683  
 Leu Tyr Ile Met Leu Pro Cys Thr Leu Ser Ala Ser Phe Ala Phe Met  
 540 545 550

ttg cct gtg gcc acc cct cca aat gcc atc gtg ttc acc tat ggg cac 1731  
 Leu Pro Val Ala Thr Pro Pro Asn Ala Ile Val Phe Thr Tyr Gly His  
 555 560 565

ctc aag gtt gct gac atg gta aaa aca gga gtc ata atg aac ata att 1779  
 Leu Lys Val Ala Asp Met Val Lys Thr Gly Val Ile Met Asn Ile Ile  
 570 575 580

gga gtc ttc tgt gtg ttt ttg gct gtc aac acc tgg gga cgg gcc ata 1827  
 Gly Val Phe Cys Val Phe Leu Ala Val Asn Thr Trp Gly Arg Ala Ile  
 585 590 595

ttt gac ttg gat cat ttc cct gac tgg gct aat gtg aca cat att gag 1875  
 Phe Asp Leu Asp His Phe Pro Asp Trp Ala Asn Val Thr His Ile Glu  
 600 605 610 615

act taggaagagc cacaagacca c 1899  
 Thr

<210>46

<211>616

<212>PRT

<213> Homo sapiens

<400>46

Met Ala Ser Ala Leu Ser Tyr Val Ser Lys Phe Lys Ser Phe Val Ile  
 1 5 10 15

Leu Phe Val Thr Pro Leu Leu Leu Leu Pro Leu Val Ile Leu Met Pro  
 20 25 30

Ala Lys Val Ser Cys Cys Ala Tyr Val Ile Ile Leu Met Ala Ile Tyr  
 35 40 45

Trp Cys Thr Glu Val Ile Pro Leu Ala Val Thr Ser Leu Met Pro Val  
 50 55 60

Leu Leu Phe Pro Leu Phe Gln Ile Leu Asp Ser Arg Gln Val Cys Val  
 65 70 75 80

Gln Tyr Met Lys Asp Thr Asn Met Leu Phe Leu Gly Gly Leu Ile Val  
 85 90 95  
 Ala Val Ala Val Glu Arg Trp Asn Leu His Lys Arg Ile Ala Leu Arg  
 100 105 110  
 Thr Leu Leu Trp Val Gly Ala Lys Pro Ala Arg Leu Met Leu Gly Phe  
 115 120 125  
 Met Gly Val Thr Ala Leu Leu Ser Met Trp Ile Ser Asn Thr Ala Thr  
 130 135 140  
 Thr Ala Met Met Val Pro Ile Val Glu Ala Ile Leu Gln Gln Met Glu  
 145 150 155 160  
 Ala Thr Ser Ala Ala Thr Glu Ala Gly Leu Glu Gly Gln Gly Thr Thr  
 165 170 175  
 Ile Asn Asn Leu Asn Ala Leu Glu Asp Asp Thr Val Lys Ala Val Leu  
 180 185 190  
 Gly Gly Lys Cys Val Ala Ile Ile Ser Thr Tyr Val Lys Lys Val Glu  
 195 200 205  
 Lys Leu Gln Ile Asn Asn Leu Met Thr Pro Leu Lys Lys Leu Glu Lys  
 210 215 220  
 Gln Glu Gln Gln Asp Leu Gly Pro Gly Ile Arg Pro Gln Asp Ser Ala  
 225 230 235 240  
 Gln Cys Gln Glu Asp Gln Glu Arg Lys Arg Leu Cys Lys Ala Met Thr  
 245 250 255  
 Leu Cys Ile Cys Tyr Ala Ala Ser Ile Gly Gly Thr Ala Thr Leu Thr  
 260 265 270  
 Gly Thr Gly Pro Asn Val Val Leu Leu Gly Gln Met Asn Glu Leu Phe  
 275 280 285  
 Pro Asp Ser Lys Asp Leu Val Asn Phe Ala Ser Trp Phe Ala Phe Ala  
 290 295 300  
 Phe Pro Asn Met Leu Val Met Leu Leu Phe Ala Trp Leu Trp Leu Gln  
 305 310 315 320  
 Phe Val Tyr Met Phe Ser Ser Phe Lys Lys Ser Trp Gly Cys Gly Leu  
 325 330 335  
 Glu Ser Lys Lys Asn Glu Lys Ala Ala Leu Lys Val Leu Gln Glu Glu  
 340 345 350  
 Tyr Arg Lys Leu Gly Pro Leu Ser Phe Ala Glu Ile Asn Val Leu Ile  
 355 360 365  
 Cys Phe Phe Leu Leu Val Ile Leu Trp Phe Ser Arg Asp Pro Gly Phe  
 370 375 380

Met Pro Gly Trp Leu Thr Val Ala Trp Val Glu Gly Glu Thr Lys Ser  
 385 390 395 400  
 Val Ser Asp Ala Thr Val Ala Ile Phe Val Ala Thr Leu Leu Phe Ile  
 405 410 415  
 Val Pro Ser Gln Lys Pro Lys Phe Asn Phe Arg Ser Gln Thr Glu Glu  
 420 425 430  
 Gly Lys Ser Pro Val Leu Ile Ala Pro Pro Pro Leu Leu Asp Trp Lys  
 435 440 445  
 Val Thr Gln Glu Lys Val Pro Trp Gly Ile Val Leu Leu Leu Gly Gly  
 450 455 460  
 Gly Phe Ala Leu Ala Lys Gly Ser Glu Ala Ser Gly Leu Ser Val Trp  
 465 470 475 480  
 Met Gly Lys Gln Met Glu Pro Leu His Ala Val Pro Pro Ala Ala Ile  
 485 490 495  
 Thr Leu Ile Leu Ser Leu Leu Val Ala Val Phe Thr Glu Cys Thr Ser  
 500 505 510  
 Asn Val Ala Thr Thr Thr Leu Phe Leu Pro Ile Phe Ala Ser Met Ser  
 515 520 525  
 Arg Ser Ile Gly Leu Asn Pro Leu Tyr Ile Met Leu Pro Cys Thr Leu  
 530 535 540  
 Ser Ala Ser Phe Ala Phe Met Leu Pro Val Ala Thr Pro Pro Asn Ala  
 545 550 555 560  
 Ile Val Phe Thr Tyr Gly His Leu Lys Val Ala Asp Met Val Lys Thr  
 565 570 575  
 Gly Val Ile Met Asn Ile Ile Gly Val Phe Cys Val Phe Leu Ala Val  
 580 585 590  
 Asn Thr Trp Gly Arg Ala Ile Phe Asp Leu Asp His Phe Pro Asp Trp  
 595 600 605  
 Ala Asn Val Thr His Ile Glu Thr  
 610 615

<210>47

<211>1899

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(31)..(1879)

<400>47

cgtctcgcgc gccagttctcc ctcccgcgcg atg gcc tcg gcg ctg agc tat  
 Met Ala Ser Ala Leu Ser Tyr

1

5

51

gtc tcc aag ttc aag tcc ttc gtg atc ttg ttc gtc acc ccg ctc ctg	99
Val Ser Lys Phe Lys Ser Phe Val Ile Leu Phe Val Thr Pro Leu Leu	
10 15 20	
ctg ctg cca ctc gtc att ctg atg ccc gcc aag gtc agt tgc tgt gcc	147
Leu Leu Pro Leu Val Ile Leu Met Pro Ala Lys Val Ser Cys Cys Ala	
25 30 35	
tac gtc atc atc ctc atg gcc att tac tgg tgc aca gaa gtc atc cct	195
Tyr Val Ile Ile Leu Met Ala Ile Tyr Trp Cys Thr Glu Val Ile Pro	
40 45 50 55	
ctg gct gtc acc tct ctc atg cct gtc ttg ctt ttc cca ctc ttc cag	243
Leu Ala Val Thr Ser Leu Met Pro Val Leu Leu Phe Pro Leu Phe Gln	
60 65 70	
att ctg gac tcc agg cag gtg tgt gtc cag tac atg aag gac acc aac	291
Ile Leu Asp Ser Arg Gln Val Cys Val Gln Tyr Met Lys Asp Thr Asn	
75 80 85	
atg ctg ttc ctg ggc ggc ctc atc gtg gcc gtg gct gtg gag cgc tgg	339
Met Leu Phe Leu Gly Gly Leu Ile Val Ala Val Ala Val Glu Arg Trp	
90 95 100	
aac ctg cac aag agg atc gcc ctg cgc acg ctc ctc tgg gtg ggg gcc	387
Asn Leu His Lys Arg Ile Ala Leu Arg Thr Leu Leu Trp Val Gly Ala	
105 110 115	
aag cct gca cgg ctg atg ctg ggc ttc atg ggc gtc aca gcc ctc ctg	435
Lys Pro Ala Arg Leu Met Leu Gly Phe Met Gly Val Thr Ala Leu Leu	
120 125 130 135	
tcc atg tgg atc agt aac acg gca acc acg gcc atg atg gtg ccc atc	483
Ser Met Trp Ile Ser Asn Thr Ala Thr Thr Ala Met Met Val Pro Ile	
140 145 150	
gtg gag gcc ata ttg cag cag atg gaa gcc aca agc gca gcc acc gag	531
Val Glu Ala Ile Leu Gln Gln Met Glu Ala Thr Ser Ala Ala Thr Glu	
155 160 165	
gcc ggc ctg gag gga caa ggt acc aca ata aac aac ctg aat gca ctg	579
Ala Gly Leu Glu Gly Gln Gly Thr Thr Ile Asn Asn Leu Asn Ala Leu	
170 175 180	
gag gat gat aca gtg aaa gca gta cta gga gga aag tgt gta gct ata	627
Glu Asp Asp Thr Val Lys Ala Val Leu Gly Gly Lys Cys Val Ala Ile	
185 190 195	
ata agc act tac gtc aaa aaa gta gaa aaa ctt caa ata aac aat cta	675
Ile Ser Thr Tyr Val Lys Lys Val Glu Lys Leu Gln Ile Asn Asn Leu	
200 205 210 215	
atg aca cct ctt aaa aaa cta gaa aag caa gag caa cag gac cta ggg	723
Met Thr Pro Leu Lys Lys Leu Glu Lys Gln Glu Gln Gln Asp Leu Gly	
220 225 230	

cct ggc atc agg cct cag gac tct gcc cag tgc cag gaa gac caa gag	771
Pro Gly Ile Arg Pro Gln Asp Ser Ala Gln Cys Gln Glu Asp Gln Glu	
235 240 245	
cgg aag agg ttg tgt aag gcc atg acc ctg tgc atc tgc tac gcg gcc	819
Arg Lys Arg Leu Cys Lys Ala Met Thr Leu Cys Ile Cys Tyr Ala Ala	
250 255 260	
agc atc ggg ggc acc gcc acc ctg acc ggg acg gga ccc aac gtg gtg	867
Ser Ile Gly Gly Thr Ala Thr Leu Thr Gly Thr Gly Pro Asn Val Val	
265 270 275	
ctc ctg ggc cag atg aac gag ttg ttt cct gac agc aag gac ctc gtg	915
Leu Leu Gly Gln Met Asn Glu Leu Phe Pro Asp Ser Lys Asp Leu Val	
280 285 290 295	
aac ttt gct tcc tgg ttt gca ttt gcc ttt ccc aac atg ctg gtg atg	963
Asn Phe Ala Ser Trp Phe Ala Phe Ala Phe Pro Asn Met Leu Val Met	
300 305 310	
ctg ctg ttc gcc tgg ctg tgg ctc cag ttt gtt tac atg ttc tcc agt	1011
Leu Leu Phe Ala Trp Leu Trp Leu Gln Phe Val Tyr Met Phe Ser Ser	
315 320 325	
ttt aaa aag tcc tgg ggc tgc ggg cta gag agc aag aaa aac gag aag	1059
Phe Lys Lys Ser Trp Gly Cys Gly Leu Glu Ser Lys Lys Asn Glu Lys	
330 335 340	
gct gcc ctc aag gtg ctg cag gag gag tac cgg aag ctg ggg ccc ttg	1107
Ala Ala Leu Lys Val Leu Gln Glu Glu Tyr Arg Lys Leu Gly Pro Leu	
345 350 355	
tcc ttc gcg gag atc aac gtg ctg atc tgc ttc ttc ctg ctg gtc atc	1155
Ser Phe Ala Glu Ile Asn Val Leu Ile Cys Phe Phe Leu Leu Val Ile	
360 365 370 375	
ctg tgg ttc tcc cga gac ccc ggc ttc atg ccc ggc tgg ctg act gtt	1203
Leu Trp Phe Ser Arg Asp Pro Gly Phe Met Pro Gly Trp Leu Thr Val	
380 385 390	
gcc tgg gtg gag ggt gag aca aag tca gtc tcc gat gcc act gtg gcc	1251
Ala Trp Val Glu Gly Glu Thr Lys Ser Val Ser Asp Ala Thr Val Ala	
395 400 405	
atc ttt gtg gcc acc ctg cta ttc att gtg cct tca cag aag ccc aag	1299
Ile Phe Val Ala Thr Leu Leu Phe Ile Val Pro Ser Gln Lys Pro Lys	
410 415 420	
ttt aac ttc cgc agc cag act gag gaa ggt aag tct cct gtt ctg atc	1347
Phe Asn Phe Arg Ser Gln Thr Glu Glu Gly Lys Ser Pro Val Leu Ile	
425 430 435	
gcc ccc cct ccc ctg ctg gat tgg aag gta acc cag gag aaa gtg ccc	1395
Ala Pro Pro Pro Leu Leu Asp Trp Lys Val Thr Gln Glu Lys Val Pro	
440 445 450 455	
tgg ggc atc gtg ctg cta cta ggg ggc gga ttt gct ctg gct aaa gga	1443

Trp Gly Ile Val Leu Leu Leu Gly Gly Gly Phe Ala Leu Ala Lys Gly  
 460 465 470  
 tcc gag gcc tcg ggg ctg tcc gtg tgg atg ggg aag cag atg gag ccc 1491  
 Ser Glu Ala Ser Gly Leu Ser Val Trp Met Gly Lys Gln Met Glu Pro  
 475 480 485  
 ttg cac gca gtg ccc ccg gca gcc atc acc ttg atc ttg tcc ttg ctc 1539  
 Leu His Ala Val Pro Pro Ala Ala Ile Thr Leu Ile Leu Ser Leu Leu  
 490 495 500  
 gtt gcc gtg ttc act gag tgc aca agc aac gtg gcc acc acc acc ttg 1587  
 Val Ala Val Phe Thr Glu Cys Thr Ser Asn Val Ala Thr Thr Thr Leu  
 505 510 515  
 ttc ctg ccc atc ttt gcc tcc atg tct cgc tcc atc ggc ctc aat ccg 1635  
 Phe Leu Pro Ile Phe Ala Ser Met Ser Arg Ser Ile Gly Leu Asn Pro  
 520 525 530 535  
 ctg tac atc atg ctg ccc tgt acc ctg agt gcc tcc ttt gcc ttc atg 1683  
 Leu Tyr Ile Met Leu Pro Cys Thr Leu Ser Ala Ser Phe Ala Phe Met  
 540 545 550  
 ttg cct gtg gcc acc cct cca aat gcc atc gtg ttc acc tat ggg cac 1731  
 Leu Pro Val Ala Thr Pro Pro Asn Ala Ile Val Phe Thr Tyr Gly His  
 555 560 565  
 ctc aag gtt gct gac atg gta aaa aca gga gtc ata atg aac ata att 1779  
 Leu Lys Val Ala Asp Met Val Lys Thr Gly Val Ile Met Asn Ile Ile  
 570 575 580  
 gga gtc ttc tgt gtg ttt ttg gct gtc aac acc tgg gga cgg gcc ata 1827  
 Gly Val Phe Cys Val Phe Leu Ala Val Asn Thr Trp Gly Arg Ala Ile  
 585 590 595  
 ttt gac ttg gat cat ttc cct gac tgg gct aat gtg aca cat att gag 1875  
 Phe Asp Leu Asp His Phe Pro Asp Trp Ala Asn Val Thr His Ile Glu  
 600 605 610 615  
 act taggaagagc cacaagacca c 1899  
 Thr

<210>48

<211>616

<212>PRT

<213> Homo sapiens

<400>48

Met Ala Ser Ala Leu Ser Tyr Val Ser Lys Phe Lys Ser Phe Val Ile  
 1 5 10 15

Leu Phe Val Thr Pro Leu Leu Leu Leu Pro Leu Val Ile Leu Met Pro  
 20 25 30

Ala Lys Val Ser Cys Cys Ala Tyr Val Ile Ile Leu Met Ala Ile Tyr  
 35 40 45



Trp Cys Thr Glu Val Ile Pro Leu Ala Val Thr Ser Leu Met Pro Val  
 50 55 60

Leu Leu Phe Pro Leu Phe Gln Ile Leu Asp Ser Arg Gln Val Cys Val  
 65 70 75 80

Gln Tyr Met Lys Asp Thr Asn Met Leu Phe Leu Gly Gly Leu Ile Val  
 85 90 95

Ala Val Ala Val Glu Arg Trp Asn Leu His Lys Arg Ile Ala Leu Arg  
 100 105 110

Thr Leu Leu Trp Val Gly Ala Lys Pro Ala Arg Leu Met Leu Gly Phe  
 115 120 125

Met Gly Val Thr Ala Leu Leu Ser Met Trp Ile Ser Asn Thr Ala Thr  
 130 135 140

Thr Ala Met Met Val Pro Ile Val Glu Ala Ile Leu Gln Gln Met Glu  
 145 150 155 160

Ala Thr Ser Ala Ala Thr Glu Ala Gly Leu Glu Gly Gln Gly Thr Thr  
 165 170 175

Ile Asn Asn Leu Asn Ala Leu Glu Asp Asp Thr Val Lys Ala Val Leu  
 180 185 190

Gly Gly Lys Cys Val Ala Ile Ile Ser Thr Tyr Val Lys Lys Val Glu  
 195 200 205

Lys Leu Gln Ile Asn Asn Leu Met Thr Pro Leu Lys Lys Leu Glu Lys  
 210 215 220

Gln Glu Gln Gln Asp Leu Gly Pro Gly Ile Arg Pro Gln Asp Ser Ala  
 225 230 235 240

Gln Cys Gln Glu Asp Gln Glu Arg Lys Arg Leu Cys Lys Ala Met Thr  
 245 250 255

Leu Cys Ile Cys Tyr Ala Ala Ser Ile Gly Gly Thr Ala Thr Leu Thr  
 260 265 270

Gly Thr Gly Pro Asn Val Val Leu Leu Gly Gln Met Asn Glu Leu Phe  
 275 280 285

Pro Asp Ser Lys Asp Leu Val Asn Phe Ala Ser Trp Phe Ala Phe Ala  
 290 295 300

Phe Pro Asn Met Leu Val Met Leu Leu Phe Ala Trp Leu Trp Leu Gln  
 305 310 315 320

Phe Val Tyr Met Phe Ser Ser Phe Lys Lys Ser Trp Gly Cys Gly Leu  
 325 330 335

Glu Ser Lys Lys Asn Glu Lys Ala Ala Leu Lys Val Leu Gln Glu Glu  
 340 345 350

Tyr Arg Lys Leu Gly Pro Leu Ser Phe Ala Glu Ile Asn Val Leu Ile  
 355 360 365  
 Cys Phe Phe Leu Leu Val Ile Leu Trp Phe Ser Arg Asp Pro Gly Phe  
 370 375 380  
 Met Pro Gly Trp Leu Thr Val Ala Trp Val Glu Gly Glu Thr Lys Ser  
 385 390 395 400  
 Val Ser Asp Ala Thr Val Ala Ile Phe Val Ala Thr Leu Leu Phe Ile  
 405 410 415  
 Val Pro Ser Gln Lys Pro Lys Phe Asn Phe Arg Ser Gln Thr Glu Glu  
 420 425 430  
 Gly Lys Ser Pro Val Leu Ile Ala Pro Pro Pro Leu Leu Asp Trp Lys  
 435 440 445  
 Val Thr Gln Glu Lys Val Pro Trp Gly Ile Val Leu Leu Leu Gly Gly  
 450 455 460  
 Gly Phe Ala Leu Ala Lys Gly Ser Glu Ala Ser Gly Leu Ser Val Trp  
 465 470 475 480  
 Met Gly Lys Gln Met Glu Pro Leu His Ala Val Pro Pro Ala Ala Ile  
 485 490 495  
 Thr Leu Ile Leu Ser Leu Leu Val Ala Val Phe Thr Glu Cys Thr Ser  
 500 505 510  
 Asn Val Ala Thr Thr Thr Leu Phe Leu Pro Ile Phe Ala Ser Met Ser  
 515 520 525  
 Arg Ser Ile Gly Leu Asn Pro Leu Tyr Ile Met Leu Pro Cys Thr Leu  
 530 535 540  
 Ser Ala Ser Phe Ala Phe Met Leu Pro Val Ala Thr Pro Pro Asn Ala  
 545 550 555 560  
 Ile Val Phe Thr Tyr Gly His Leu Lys Val Ala Asp Met Val Lys Thr  
 565 570 575  
 Gly Val Ile Met Asn Ile Ile Gly Val Phe Cys Val Phe Leu Ala Val  
 580 585 590  
 Asn Thr Trp Gly Arg Ala Ile Phe Asp Leu Asp His Phe Pro Asp Trp  
 595 600 605  
 Ala Asn Val Thr His Ile Glu Thr  
 610 615

<210>49

<211>1606

<212>DNA

<213> Homo sapiens

<220>  
 <221> CDS  
 <222> (2) .. (1568)  
 <400> 49

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Met Ala Ser Ala Leu Ser Tyr Val Ser Lys Phe Lys Ser Phe Val	
1 5 10 15	
atc ttg ttc gtc acc ccg ctc ctg ctg ctg cca ctc gtc att ctg atg	94
Ile Leu Phe Val Thr Pro Leu Leu Leu Leu Pro Leu Val Ile Leu Met	
20 25 30	
ccc gcc aag ttt gtc agg tgt gcc tac gtc atc atc ctc atg gcc att	142
Pro Ala Lys Phe Val Arg Cys Ala Tyr Val Ile Ile Leu Met Ala Ile	
35 40 45	
tac tgg tgc aca gaa gtc atc cct ctg gct gtc acc tct ctc atg cct	190
Tyr Trp Cys Thr Glu Val Ile Pro Leu Ala Val Thr Ser Leu Met Pro	
50 55 60	
gtc ttg ctt ttc cca ctc ttc cag att ctg gac tcc agg cag gtg tgt	238
Val Leu Leu Phe Pro Leu Phe Gln Ile Leu Asp Ser Arg Gln Val Cys	
65 70 75	
gtc cag tac atg aag gac acc aac atg ctg ttc ctg ggc ggc ctc atc	286
Val Gln Tyr Met Lys Asp Thr Asn Met Leu Phe Leu Gly Gly Leu Ile	
80 85 90 95	
gtg gcc gtg gct gtg gag cgc tgg aac ctg cac aag agg atc gcc ctg	334
Val Ala Val Ala Val Glu Arg Trp Asn Leu His Lys Arg Ile Ala Leu	
100 105 110	
cgc acg ctc ctc tgg gtg ggg gcc aag cct gca cgg ctg atg ctg ggc	382
Arg Thr Leu Leu Trp Val Gly Ala Lys Pro Ala Arg Leu Met Leu Gly	
115 120 125	
ttc atg ggc gtc aca gcc ctc ctg tcc atg tgg atc agt aac acg gca	430
Phe Met Gly Val Thr Ala Leu Leu Ser Met Trp Ile Ser Asn Thr Ala	
130 135 140	
acc acg gcc atg atg gtg ccc atc gtg gag gcc ata ttg cag cag atg	478
Thr Thr Ala Met Met Val Pro Ile Val Glu Ala Ile Leu Gln Gln Met	
145 150 155	
gaa gcc aca agc gca gcc acc gag gcc ggc ctg gag ctg gtg gac aag	526
Glu Ala Thr Ser Ala Ala Thr Glu Ala Gly Leu Glu Leu Val Asp Lys	
160 165 170 175	
ggc aag gcc aag gag ctg cca ggg agt caa gtg att ttt gaa ggc ccc	574
Gly Lys Ala Lys Glu Leu Pro Gly Ser Gln Val Ile Phe Glu Gly Pro	
180 185 190	
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Thr Leu Gly Gln Gln Glu Asp Gln Glu Arg Lys Arg Leu Cys Lys Ala	
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Met Thr Leu Cys Ile Cys Tyr Ala Ala Ser Ile Gly Gly Thr Ala Thr	
210 215 220	
ctg acc ggg acg gga ccc aac gtg gtg ctc ctg ggc cag atg aac gag	718
Leu Thr Gly Thr Gly Pro Asn Val Val Leu Leu Gly Gln Met Asn Glu	
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Leu Phe Pro Asp Ser Lys Asp Leu Val Asn Phe Ala Ser Trp Phe Ala	
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Phe Ala Phe Pro Asn Met Leu Val Met Leu Leu Phe Ala Trp Leu Trp	
260 265 270	
ctc cag ttt gtt tac atg aga ttc aat ttt aaa aag tcc tgg ggc tgc	862
Leu Gln Phe Val Tyr Met Arg Phe Asn Phe Lys Lys Ser Trp Gly Cys	
275 280 285	
ggg cta gag agc aag aaa aac gag aag gct gcc ctc aag gtg ctg cag	910
Gly Leu Glu Ser Lys Lys Asn Glu Lys Ala Ala Leu Lys Val Leu Gln	
290 295 300	
gag gag tac cgg aag ttg ggg ccc ttg tcc ttc gcg gag atc aac gtg	958
Glu Glu Tyr Arg Lys Leu Gly Pro Leu Ser Phe Ala Glu Ile Asn Val	
305 310 315	
ctg atc tgc ttc ttc ctg ctg gtc atc ctg tgg ttc tcc cga gac ccc	1006
Leu Ile Cys Phe Phe Leu Leu Val Ile Leu Trp Phe Ser Arg Asp Pro	
320 325 330 335	
ggc ttc atg ccc ggc tgg ctg act gtt gcc tgg gtg gag ggt gag aca	1054
Gly Phe Met Pro Gly Trp Leu Thr Val Ala Trp Val Glu Gly Glu Thr	
340 345 350	
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Lys Tyr Val Ser Asp Ala Thr Val Ala Ile Phe Val Ala Thr Leu Leu	
355 360 365	
ttc att gtg cct tca cag aag ccc aag ttt aac ttc cgc agc cag act	1150
Phe Ile Val Pro Ser Gln Lys Pro Lys Phe Asn Phe Arg Ser Gln Thr	
370 375 380	
gag gaa gaa agg aaa act cca ttt tat ccc cct ccc ctg ctg gat tgg	1198
Glu Glu Glu Arg Lys Thr Pro Phe Tyr Pro Pro Pro Leu Leu Asp Trp	
385 390 395	
aag gta acc cag gag aaa gtg ccc tgg ggc atc gtg ctg cta cta ggg	1246
Lys Val Thr Gln Glu Lys Val Pro Trp Gly Ile Val Leu Leu Leu Gly	
400 405 410 415	
ggc gga ttt gct ctg gct aaa gga tcc gag gcc tgc ggg ctg tcc gtg	1294
Gly Gly Phe Ala Leu Ala Lys Gly Ser Glu Ala Ser Gly Leu Ser Val	
420 425 430	
tgg atg ggg aag cag atg gag ccc ttg cac gca gtg ccc ccg gca gcc	1342
Trp Met Gly Lys Gln Met Glu Pro Leu His Ala Val Pro Pro Ala Ala	

435	440	445	
atc acc ttg atc ttg tcc ttg ctc gtt gcc gtg ttc act gag tgc aca			1390
Ile Thr Leu Ile Leu Ser Leu Leu Val Ala Val Phe Thr Glu Cys Thr			
450	455	460	
agc aac gtg gcc acc acc acc ttg ttc ctg ccc atc ttt gcc tcc atg			1438
Ser Asn Val Ala Thr Thr Thr Leu Phe Leu Pro Ile Phe Ala Ser Met			
465	470	475	
gtg aaa aca gga gtc ata atg aac ata att gga gtc ttc tgt gtg ttt			1486
Val Lys Thr Gly Val Ile Met Asn Ile Ile Gly Val Phe Cys Val Phe			
480	485	490	495
ttg gct gtc aac acc tgg gga cgg gcc ata ttt gac ttg gat cat ttc			1534
Leu Ala Val Asn Thr Trp Gly Arg Ala Ile Phe Asp Leu Asp His Phe			
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cct gac tgg gct aat gtg aca cat att gag act taggaagagc			1577
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 Ala Lys Phe Val Arg Cys Ala Tyr Val Ile Ile Leu Met Ala Ile Tyr  
 35 40 45  
 Trp Cys Thr Glu Val Ile Pro Leu Ala Val Thr Ser Leu Met Pro Val  
 50 55 60  
 Leu Leu Phe Pro Leu Phe Gln Ile Leu Asp Ser Arg Gln Val Cys Val  
 65 70 75 80  
 Gln Tyr Met Lys Asp Thr Asn Met Leu Phe Leu Gly Gly Leu Ile Val  
 85 90 95  
 Ala Val Ala Val Glu Arg Trp Asn Leu His Lys Arg Ile Ala Leu Arg  
 100 105 110  
 Thr Leu Leu Trp Val Gly Ala Lys Pro Ala Arg Leu Met Leu Gly Phe  
 115 120 125  
 Met Gly Val Thr Ala Leu Leu Ser Met Trp Ile Ser Asn Thr Ala Thr

130	135	140
Thr Ala Met Met Val	Pro Ile Val Glu Ala	Ile Leu Gln Gln Met Glu
145	150	155 160
Ala Thr Ser Ala Ala Thr	Glu Ala Gly Leu Glu Leu Val	Asp Lys Gly
165	170	175
Lys Ala Lys Glu Leu Pro Gly Ser	Gln Val Ile Phe Glu Gly Pro Thr	
180	185	190
Leu Gly Gln Gln Glu Asp Gln Glu Arg Lys Arg	Leu Cys Lys Ala Met	
195	200	205
Thr Leu Cys Ile Cys Tyr Ala Ala Ser Ile Gly Gly Thr Ala Thr Leu		
210	215	220
Thr Gly Thr Gly Pro Asn Val Val Leu Leu Gly Gln Met Asn Glu Leu		
225	230	235 240
Phe Pro Asp Ser Lys Asp Leu Val Asn Phe Ala Ser Trp Phe Ala Phe		
245	250	255
Ala Phe Pro Asn Met Leu Val Met Leu Leu Phe Ala Trp Leu Trp Leu		
260	265	270
Gln Phe Val Tyr Met Arg Phe Asn Phe Lys Lys Ser Trp Gly Cys Gly		
275	280	285
Leu Glu Ser Lys Lys Asn Glu Lys Ala Ala Leu Lys Val Leu Gln Glu		
290	295	300
Glu Tyr Arg Lys Leu Gly Pro Leu Ser Phe Ala Glu Ile Asn Val Leu		
305	310	315 320
Ile Cys Phe Phe Leu Leu Val Ile Leu Trp Phe Ser Arg Asp Pro Gly		
325	330	335
Phe Met Pro Gly Trp Leu Thr Val Ala Trp Val Glu Gly Glu Thr Lys		
340	345	350
Tyr Val Ser Asp Ala Thr Val Ala Ile Phe Val Ala Thr Leu Leu Phe		
355	360	365
Ile Val Pro Ser Gln Lys Pro Lys Phe Asn Phe Arg Ser Gln Thr Glu		
370	375	380
Glu Glu Arg Lys Thr Pro Phe Tyr Pro Pro Pro Leu Leu Asp Trp Lys		
385	390	395 400
Val Thr Gln Glu Lys Val Pro Trp Gly Ile Val Leu Leu Leu Gly Gly		
405	410	415
Gly Phe Ala Leu Ala Lys Gly Ser Glu Ala Ser Gly Leu Ser Val Trp		
420	425	430
Met Gly Lys Gln Met Glu Pro Leu His Ala Val Pro Pro Ala Ala Ile		

435                      440                      445  
 Thr Leu Ile Leu Ser Leu Leu Val Ala Val Phe Thr Glu Cys Thr Ser  
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 Asn Val Ala Thr Thr Thr Leu Phe Leu Pro Ile Phe Ala Ser Met Val  
 465                      470                      475                      480  
 Lys Thr Gly Val Ile Met Asn Ile Ile Gly Val Phe Cys Val Phe Leu  
 485                      490                      495  
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 500                      505                      510  
 Asp Trp Ala Asn Val Thr His Ile Glu Thr  
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 atc ttg ttc gtc acc ccg ctc ctg ctg ctg cca ctc gtc att ctg atg 94  
 Ile Leu Phe Val Thr Pro Leu Leu Leu Leu Pro Leu Val Ile Leu Met  
 20                      25                      30  
 ccc gcc aag ttt gtc agg tgt gcc tac gtc atc atc ctc atg gcc att 142  
 Pro Ala Lys Phe Val Arg Cys Ala Tyr Val Ile Ile Leu Met Ala Ile  
 35                      40                      45  
 tac tgg tgc aca gaa gtc atc cct ctg gct gtc acc tct ctc atg cct 190  
 Tyr Trp Cys Thr Glu Val Ile Pro Leu Ala Val Thr Ser Leu Met Pro  
 50                      55                      60  
 gtc ttg ctt ttc cca ctc ttc cag att ctg gac tcc agg cag gtg tgt 238  
 Val Leu Leu Phe Pro Leu Phe Gln Ile Leu Asp Ser Arg Gln Val Cys  
 65                      70                      75  
 gtc cag tac atg aag gac acc aac atg ctg ttc ctg ggc ggc ctc atc 286  
 Val Gln Tyr Met Lys Asp Thr Asn Met Leu Phe Leu Gly Gly Leu Ile  
 80                      85                      90                      95  
 gtg gcc gtg gct gtg gag cgc tgg aac ctg cac aag agg atc gcc ctg 334  
 Val Ala Val Ala Val Glu Arg Trp Asn Leu His Lys Arg Ile Ala Leu  
 100                      105                      110  
 cgc acg ctc ctc tgg gtg ggg gcc aag cct gca cgg ctg atg ctg ggc 382  
 Arg Thr Leu Leu Trp Val Gly Ala Lys Pro Ala Arg Leu Met Leu Gly  
 115                      120                      125

ttc atg ggc gtc aca gcc ctc ctg tcc atg tgg atc agt aac acg gca 430  
 Phe Met Gly Val Thr Ala Leu Ser Met Trp Ile Ser Asn Thr Ala  
 130 135 140

acc acg gcc atg atg gtg ccc atc gtg gag gcc ata ttg cag cag atg 478  
 Thr Thr Ala Met Met Val Pro Ile Val Glu Ala Ile Leu Gln Gln Met  
 145 150 155

gaa gcc aca agc gca gcc acc gag gcc ggc ctg gag ctg gtg gac aag 526  
 Glu Ala Thr Ser Ala Ala Thr Glu Ala Gly Leu Glu Leu Val Asp Lys  
 160 165 170 175

ggc aag gcc aag gag ctg cca ggg agt caa gtg att ttt gaa ggc ccc 574  
 Gly Lys Ala Lys Glu Leu Pro Gly Ser Gln Val Ile Phe Glu Gly Pro  
 180 185 190

act ctg ggg cag cag gaa gac caa gag cgg aag agg ttg tgt aag gcc 622  
 Thr Leu Gly Gln Gln Glu Asp Gln Glu Arg Lys Arg Leu Cys Lys Ala  
 195 200 205

atg acc ctg tgc atc tgc tac gcg gcc agc atc ggg ggc acc gcc acc 670  
 Met Thr Leu Cys Ile Cys Tyr Ala Ala Ser Ile Gly Gly Thr Ala Thr  
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ctg acc ggg acg gga ccc aac gtg gtg ctc ctg ggc cag atg aac gag 718  
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 Leu Phe Pro Asp Ser Lys Asp Leu Val Asn Phe Ala Ser Trp Phe Ala  
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ctc cag ttt gtt tac atg aga ttc aat ttt aaa aag tcc tgg ggc tgc 862  
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 275 280 285

ggg cta gag agc aag aaa aac gag aag gct gcc ctc aag gtg ctg cag 910  
 Gly Leu Glu Ser Lys Lys Asn Glu Lys Ala Ala Leu Lys Val Leu Gln  
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gag gag tac cgg aag ttg ggg ccc ttg tcc ttc gcg gag atc aac gtg 958  
 Glu Glu Tyr Arg Lys Leu Gly Pro Leu Ser Phe Ala Glu Ile Asn Val  
 305 310 315

ctg atc tgc ttc ttc ctg ctg gtc atc ctg tgg ttc tcc cga gac ccc 1006  
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 320 325 330 335

ggc ttc atg ccc ggc tgg ctg act gtt gcc tgg gtg gag ggt gag aca 1054  
 Gly Phe Met Pro Gly Trp Leu Thr Val Ala Trp Val Glu Gly Glu Thr  
 340 345 350



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ttc att gtg cct tca cag aag ccc aag ttt aac ttc cgc agc cag act Phe Ile Val Pro Ser Gln Lys Pro Lys Phe Asn Phe Arg Ser Gln Thr 370 375 380	1150
gag gaa gaa agg aaa act cca ttt tat ccc cct ccc ctg ctg gat tgg Glu Glu Glu Arg Lys Thr Pro Phe Tyr Pro Pro Pro Leu Leu Asp Trp 385 390 395	1198
aag gta acc cag gag aaa gtg ccc tgg ggc atc gtg ctg cta cta ggg Lys Val Thr Gln Glu Lys Val Pro Trp Gly Ile Val Leu Leu Leu Gly 400 405 410 415	1246
ggc gga ttt gct ctg gct aaa gga tcc gag gcc tcg ggg ctg tcc gtg Gly Gly Phe Ala Leu Ala Lys Gly Ser Glu Ala Ser Gly Leu Ser Val 420 425 430	1294
tgg atg ggg aag cag atg gag ccc ttg cac gca gtg ccc ccg gca gcc Trp Met Gly Lys Gln Met Glu Pro Leu His Ala Val Pro Pro Ala Ala 435 440 445	1342
atc acc ttg atc ttg tcc ttg ctc gtt gcc gtg ttc act gag tgc aca Ile Thr Leu Ile Leu Ser Leu Leu Val Ala Val Phe Thr Glu Cys Thr 450 455 460	1390
agc aac gtg gcc acc acc acc ttg ttc ctg ccc atc ttt gcc tcc atg Ser Asn Val Ala Thr Thr Thr Leu Phe Leu Pro Ile Phe Ala Ser Met 465 470 475	1438
aat cac gtc ccc aag agc ttc tgt gtt ctg tac ggt gat gtt gca gtg Asn His Val Pro Lys Ser Phe Cys Val Leu Tyr Gly Asp Val Ala Val 480 485 490 495	1486
ctg tct ttc cgc agt ctc gct cca tcg gcc tca atc cgc tgt aca tca Leu Ser Phe Arg Ser Leu Ala Pro Ser Ala Ser Ile Arg Cys Thr Ser 500 505 510	1534
tgc tgc cct gta ccc tgagtgcctc ctttgccctc atgttgccctg tggccacccc Cys Cys Pro Val Pro 515	1589
tccaaatgcc atcgtgttca cctatgggca cctcaagggtt gctgacatgg	1639
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 Ala Lys Phe Val Arg Cys Ala Tyr Val Ile Ile Leu Met Ala Ile Tyr  
                   35                  40                  45  
 Trp Cys Thr Glu Val Ile Pro Leu Ala Val Thr Ser Leu Met Pro Val  
           50                  55                  60  
 Leu Leu Phe Pro Leu Phe Gln Ile Leu Asp Ser Arg Gln Val Cys Val  
           65                  70                  75                  80  
 Gln Tyr Met Lys Asp Thr Asn Met Leu Phe Leu Gly Gly Leu Ile Val  
                   85                  90                  95  
 Ala Val Ala Val Glu Arg Trp Asn Leu His Lys Arg Ile Ala Leu Arg  
                   100                  105                  110  
 Thr Leu Leu Trp Val Gly Ala Lys Pro Ala Arg Leu Met Leu Gly Phe  
           115                  120                  125  
 Met Gly Val Thr Ala Leu Leu Ser Met Trp Ile Ser Asn Thr Ala Thr  
           130                  135                  140  
 Thr Ala Met Met Val Pro Ile Val Glu Ala Ile Leu Gln Gln Met Glu  
           145                  150                  155                  160  
 Ala Thr Ser Ala Ala Thr Glu Ala Gly Leu Glu Leu Val Asp Lys Gly  
                   165                  170                  175  
 Lys Ala Lys Glu Leu Pro Gly Ser Gln Val Ile Phe Glu Gly Pro Thr  
           180                  185                  190  
 Leu Gly Gln Gln Glu Asp Gln Glu Arg Lys Arg Leu Cys Lys Ala Met  
           195                  200                  205  
 Thr Leu Cys Ile Cys Tyr Ala Ala Ser Ile Gly Gly Thr Ala Thr Leu  
           210                  215                  220  
 Thr Gly Thr Gly Pro Asn Val Val Leu Leu Gly Gln Met Asn Glu Leu  
           225                  230                  235                  240  
 Phe Pro Asp Ser Lys Asp Leu Val Asn Phe Ala Ser Trp Phe Ala Phe  
                   245                  250                  255

Ala Phe Pro Asn Met Leu Val Met Leu Leu Phe Ala Trp Leu Trp Leu  
                   260                                  265                                  270  
 Gln Phe Val Tyr Met Arg Phe Asn Phe Lys Lys Ser Trp Gly Cys Gly  
                   275                                  280                                  285  
 Leu Glu Ser Lys Lys Asn Glu Lys Ala Ala Leu Lys Val Leu Gln Glu  
                   290                                  295                                  300  
 Glu Tyr Arg Lys Leu Gly Pro Leu Ser Phe Ala Glu Ile Asn Val Leu  
                   305                                  310                                  315                                  320  
 Ile Cys Phe Phe Leu Leu Val Ile Leu Trp Phe Ser Arg Asp Pro Gly  
                                   325                                  330                                  335  
 Phe Met Pro Gly Trp Leu Thr Val Ala Trp Val Glu Gly Glu Thr Lys  
                                   340                                  345                                  350  
 Tyr Val Ser Asp Ala Thr Val Ala Ile Phe Val Ala Thr Leu Leu Phe  
                   355                                  360                                  365  
 Ile Val Pro Ser Gln Lys Pro Lys Phe Asn Phe Arg Ser Gln Thr Glu  
                   370                                  375                                  380  
 Glu Glu Arg Lys Thr Pro Phe Tyr Pro Pro Pro Leu Leu Asp Trp Lys  
                   385                                  390                                  395                                  400  
 Val Thr Gln Glu Lys Val Pro Trp Gly Ile Val Leu Leu Leu Gly Gly  
                                   405                                  410                                  415  
 Gly Phe Ala Leu Ala Lys Gly Ser Glu Ala Ser Gly Leu Ser Val Trp  
                                   420                                  425                                  430  
 Met Gly Lys Gln Met Glu Pro Leu His Ala Val Pro Pro Ala Ala Ile  
                   435                                  440                                  445  
 Thr Leu Ile Leu Ser Leu Leu Val Ala Val Phe Thr Glu Cys Thr Ser  
                   450                                  455                                  460  
 Asn Val Ala Thr Thr Thr Leu Phe Leu Pro Ile Phe Ala Ser Met Asn  
                   465                                  470                                  475                                  480  
 His Val Pro Lys Ser Phe Cys Val Leu Tyr Gly Asp Val Ala Val Leu  
                                   485                                  490                                  495  
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<213> Homo sapiens

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gat cct cgg gca gag ctg gta gaa cgg gtg gca gcc atc gat gtg act    97
Asp Pro Arg Ala Glu Leu Val Glu Arg Val Ala Ala Ile Asp Val Thr
               15               20               25

cac ttg gag gag gca gat ggt ggc cca gag cct act aga aac ggt gtg   145
His Leu Glu Glu Ala Asp Gly Gly Pro Glu Pro Thr Arg Asn Gly Val
               30               35               40

gac ccc cca cca cgg gcc aga gct gcc tct gtg atc cct ggc agt act   193
Asp Pro Pro Pro Arg Ala Arg Ala Ala Ser Val Ile Pro Gly Ser Thr
               45               50               55

tca aga ctg ctc cca gcc cgg cct agc ctc tca gcc agg aag ctt tcc   241
Ser Arg Leu Leu Pro Ala Arg Pro Ser Leu Ser Ala Arg Lys Leu Ser
               60               65               70

cta cag gag cgg cca gca gga agc tat ctg gag gcg cag gct ggg cct   289
Leu Gln Glu Arg Pro Ala Gly Ser Tyr Leu Glu Ala Gln Ala Gly Pro
               75               80               85               90

tat gcc acg ggg cct gcc agc cac atc tcc ccc cgg gcc tgg cgg agg   337
Tyr Ala Thr Gly Pro Ala Ser His Ile Ser Pro Arg Ala Trp Arg Arg
               95               100              105

ccc acc atc gag tcc cac cac gtg gcc atc tca gat gca gag gac tgc   385
Pro Thr Ile Glu Ser His His Val Ala Ile Ser Asp Ala Glu Asp Cys
               110              115              120

gtg cag ctg aac cag tac aag ctg cag agt gag att ggc aag ggt gcc   433
Val Gln Leu Asn Gln Tyr Lys Leu Gln Ser Glu Ile Gly Lys Gly Ala
               125              130              135

tac ggt gtg gtg agg ctg gcc tac aac gaa agt gaa gac aga cac tat   481
Tyr Gly Val Val Arg Leu Ala Tyr Asn Glu Ser Glu Asp Arg His Tyr
               140              145              150

gca atg aaa gtc ctt tcc aaa aag aag tta ctg aag cag tat ggc ttt   529
Ala Met Lys Val Leu Ser Lys Lys Lys Leu Leu Lys Gln Tyr Gly Phe
               155              160              165              170

cca cgt cgc cct ccc ccg aga ggg tcc cag gct gcc cag gga gga cca   577
Pro Arg Arg Pro Pro Pro Arg Gly Ser Gln Ala Ala Gln Gly Gly Pro
               175              180              185

gcc aag cag ctg ctg ccc ctg gag cgg gtg tac cag gag att gcc atc   625
Ala Lys Gln Leu Leu Pro Leu Glu Arg Val Tyr Gln Glu Ile Ala Ile
               190              195              200

ctg aag aag ctg gac cac gtg aat gtg gtc aaa ctg atc gag gta ctg   673
Leu Lys Lys Leu Asp His Val Asn Val Val Lys Leu Ile Glu Val Leu

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205	210	215	
gat gac cca gct gag gac aac ctc tat ttg ccc cgc atc ctt ctc cat			721
Asp Asp Pro Ala Glu Asp Asn Leu Tyr Leu Pro Arg Ile Leu Leu His			
220	225	230	
agg ccc gtc atg gaa gtg ccc tgt gac aag ccc ttc tcg gag gag caa			769
Arg Pro Val Met Glu Val Pro Cys Asp Lys Pro Phe Ser Glu Glu Gln			
235	240	245	250
gct cgc ctc tac ctg cgg gac gtc atc ctg ggc ctc gag tac gtg cac			817
Ala Arg Leu Tyr Leu Arg Asp Val Ile Leu Gly Leu Glu Tyr Val His			
255	260	265	
tgc cag aag atc gtc cac agg gac atc aag cca tcc aac ctg ctc ctg			865
Cys Gln Lys Ile Val His Arg Asp Ile Lys Pro Ser Asn Leu Leu Leu			
270	275	280	
ggg gat gat ggg cac gtg aag atc gcc gac ttt ggc gtc agc aac cag			913
Gly Asp Asp Gly His Val Lys Ile Ala Asp Phe Gly Val Ser Asn Gln			
285	290	295	
ttt gag ggg aac gac gct cag ctg tcc agc acg gcg gga acc cca gca			961
Phe Glu Gly Asn Asp Ala Gln Leu Ser Ser Thr Ala Gly Thr Pro Ala			
300	305	310	
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315	320	325	330
aag ttg gat gta tgg gcc act ggc gtc acg ttg tac tgc ttt gtc tat			1057
Lys Leu Asp Val Trp Ala Thr Gly Val Thr Leu Tyr Cys Phe Val Tyr			
335	340	345	
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Gly Lys Cys Pro Phe Ile Asp Asp Phe Ile Leu Ala Leu His Arg Lys			
350	355	360	
atc aag aat gag ccc gtg gtg ttt cct gag gag cca gaa atc agc gag			1153
Ile Lys Asn Glu Pro Val Val Phe Pro Glu Glu Pro Glu Ile Ser Glu			
365	370	375	
gag ctc aag gac ctg atc ctg aag atg tta gac aag aat ccc gag acg			1201
Glu Leu Lys Asp Leu Ile Leu Lys Met Leu Asp Lys Asn Pro Glu Thr			
380	385	390	
aga att ggg gtg cca gac atc aag ttg cac cct tgg gtg acc aag aac			1249
Arg Ile Gly Val Pro Asp Ile Lys Leu His Pro Trp Val Thr Lys Asn			
395	400	405	410
ggg gag gag ccc ctt cct tcg gag gag gag cac tgc agc gtg gtg gag			1297
Gly Glu Glu Pro Leu Pro Ser Glu Glu Glu His Cys Ser Val Val Glu			
415	420	425	
gtg aca gag gag gag gtt aag aac tca gtc agg ctc atc ccc agc tgg			1345
Val Thr Glu Glu Glu Val Lys Asn Ser Val Arg Leu Ile Pro Ser Trp			
430	435	440	

acc acg gtg atc ctg gtg aag tcc atg ctg agg aag cgt tcc ttt ggg 1393  
 Thr Thr Val Ile Leu Val Lys Ser Met Leu Arg Lys Arg Ser Phe Gly  
 445 450 455  
  
 aac ccg ttt gag ccc caa gca cgg agg gaa gag cga tcc atg tct gct 1441  
 Asn Pro Phe Glu Pro Gln Ala Arg Arg Glu Glu Arg Ser Met Ser Ala  
 460 465 470  
  
 cca gga aac cta ctg gtg aaa gaa ggg ttt ggt gaa ggg ggc aag agc 1489  
 Pro Gly Asn Leu Leu Val Lys Glu Gly Phe Gly Glu Gly Gly Lys Ser  
 475 480 485 490  
  
 cca gag ctc ccc ggc gtc cag gaa gac gag gct gca tcc tgagcccctg 1538  
 Pro Glu Leu Pro Gly Val Gln Glu Asp Glu Ala Ala Ser  
 495 500  
  
 catgcaccc 1547

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 <211>503  
 <212>PRT  
 <213> Homo sapiens

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 1 5 10 15  
  
 Val Glu Arg Val Ala Ala Ile Asp Val Thr His Leu Glu Glu Ala Asp  
 20 25 30  
  
 Gly Gly Pro Glu Pro Thr Arg Asn Gly Val Asp Pro Pro Pro Arg Ala  
 35 40 45  
  
 Arg Ala Ala Ser Val Ile Pro Gly Ser Thr Ser Arg Leu Leu Pro Ala  
 50 55 60  
  
 Arg Pro Ser Leu Ser Ala Arg Lys Leu Ser Leu Gln Glu Arg Pro Ala  
 65 70 75 80  
  
 Gly Ser Tyr Leu Glu Ala Gln Ala Gly Pro Tyr Ala Thr Gly Pro Ala  
 85 90 95  
  
 Ser His Ile Ser Pro Arg Ala Trp Arg Arg Pro Thr Ile Glu Ser His  
 100 105 110  
  
 His Val Ala Ile Ser Asp Ala Glu Asp Cys Val Gln Leu Asn Gln Tyr  
 115 120 125  
  
 Lys Leu Gln Ser Glu Ile Gly Lys Gly Ala Tyr Gly Val Val Arg Leu  
 130 135 140  
  
 Ala Tyr Asn Glu Ser Glu Asp Arg His Tyr Ala Met Lys Val Leu Ser  
 145 150 155 160

Lys Lys Lys Leu Leu Lys Gln Tyr Gly Phe Pro Arg Arg Pro Pro Pro  
 165 170 175  
 Arg Gly Ser Gln Ala Ala Gln Gly Gly Pro Ala Lys Gln Leu Leu Pro  
 180 185 190  
 Leu Glu Arg Val Tyr Gln Glu Ile Ala Ile Leu Lys Lys Leu Asp His  
 195 200 205  
 Val Asn Val Val Lys Leu Ile Glu Val Leu Asp Asp Pro Ala Glu Asp  
 210 215 220  
 Asn Leu Tyr Leu Pro Arg Ile Leu Leu His Arg Pro Val Met Glu Val  
 225 230 235 240  
 Pro Cys Asp Lys Pro Phe Ser Glu Glu Gln Ala Arg Leu Tyr Leu Arg  
 245 250 255  
 Asp Val Ile Leu Gly Leu Glu Tyr Val His Cys Gln Lys Ile Val His  
 260 265 270  
 Arg Asp Ile Lys Pro Ser Asn Leu Leu Leu Gly Asp Asp Gly His Val  
 275 280 285  
 Lys Ile Ala Asp Phe Gly Val Ser Asn Gln Phe Glu Gly Asn Asp Ala  
 290 295 300  
 Gln Leu Ser Ser Thr Ala Gly Thr Pro Ala Phe Met Ala Pro Glu Ala  
 305 310 315 320  
 Ile Ser Asp Ser Gly Gln Ser Phe Ser Gly Lys Leu Asp Val Trp Ala  
 325 330 335  
 Thr Gly Val Thr Leu Tyr Cys Phe Val Tyr Gly Lys Cys Pro Phe Ile  
 340 345 350  
 Asp Asp Phe Ile Leu Ala Leu His Arg Lys Ile Lys Asn Glu Pro Val  
 355 360 365  
 Val Phe Pro Glu Glu Pro Glu Ile Ser Glu Glu Leu Lys Asp Leu Ile  
 370 375 380  
 Leu Lys Met Leu Asp Lys Asn Pro Glu Thr Arg Ile Gly Val Pro Asp  
 385 390 395 400  
 Ile Lys Leu His Pro Trp Val Thr Lys Asn Gly Glu Glu Pro Leu Pro  
 405 410 415  
 Ser Glu Glu Glu His Cys Ser Val Val Glu Val Thr Glu Glu Glu Val  
 420 425 430  
 Lys Asn Ser Val Arg Leu Ile Pro Ser Trp Thr Thr Val Ile Leu Val  
 435 440 445  
 Lys Ser Met Leu Arg Lys Arg Ser Phe Gly Asn Pro Phe Glu Pro Gln  
 450 455 460

Ala Arg Arg Glu Glu Arg Ser Met Ser Ala Pro Gly Asn Leu Leu Val  
 465 470 475 480

Lys Glu Gly Phe Gly Glu Gly Gly Lys Ser Pro Glu Leu Pro Gly Val  
 485 490 495

Gln Glu Asp Glu Ala Ala Ser  
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<211>1611

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<213> Homo sapiens

<220>

<221> CDS

<222>(52)..(1567)

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 Met Glu Gly Gly Pro Ala Val Cys Cys Gln Asp Pro Arg Ala Glu  
 5 10 15

ctg gta gaa cgg gtg gca gcc atc gat gtg act cac ttg gag gag gca 144  
 Leu Val Glu Arg Val Ala Ala Ile Asp Val Thr His Leu Glu Glu Ala  
 20 25 30

gat ggt ggc cca gag cct act aga aac ggt gtg gac ccc cca cca cgg 192  
 Asp Gly Gly Pro Glu Pro Thr Arg Asn Gly Val Asp Pro Pro Arg  
 35 40 45

gcc aga gct gcc tct gtg atc cct ggc agt act tca aga ctg ctc cca 240  
 Ala Arg Ala Ala Ser Val Ile Pro Gly Ser Thr Ser Arg Leu Leu Pro  
 50 55 60

gcc cgg cct agc ctc tca gcc agg aag ctt tcc cta cag gag cgg cca 288  
 Ala Arg Pro Ser Leu Ser Ala Arg Lys Leu Ser Leu Gln Glu Arg Pro  
 65 70 75

gca gga agc tat ctg gag gcg cag gct ggg cct tat gcc acg ggg cct 336  
 Ala Gly Ser Tyr Leu Glu Ala Gln Ala Gly Pro Tyr Ala Thr Gly Pro  
 80 85 90 95

gcc agc cac atc tcc ccc cgg gcc tgg cgg agg ccc acc atc gag tcc 384  
 Ala Ser His Ile Ser Pro Arg Ala Trp Arg Arg Pro Thr Ile Glu Ser  
 100 105 110

cac cac gtg gcc atc tca gat gca gag gac tgc gtg cag ctg aac cag 432  
 His His Val Ala Ile Ser Asp Ala Glu Asp Cys Val Gln Leu Asn Gln  
 115 120 125

tac aag ctg cag agt gag att ggc aag ggt gcc tac ggt gtg gtg agg 480  
 Tyr Lys Leu Gln Ser Glu Ile Gly Lys Gly Ala Tyr Gly Val Val Arg  
 130 135 140



ctg gcc tac aac gaa agt gaa gac aga cac tat gca atg aaa gtc ctt	528
Leu Ala Tyr Asn Glu Ser Glu Asp Arg His Tyr Ala Met Lys Val Leu	
145 150 155	
tcc aaa aag aag tta ctg aag cag tat ggc ttt cca cgt cgc cct ccc	576
Ser Lys Lys Lys Leu Leu Lys Gln Tyr Gly Phe Pro Arg Arg Pro Pro	
160 165 170 175	
ccg aga ggg tcc cag gct gcc cag gga gga cca gcc aag cag ctg ctg	624
Pro Arg Gly Ser Gln Ala Ala Gln Gly Gly Pro Ala Lys Gln Leu Leu	
180 185 190	
ccc ctg gag cgg gtg tac cag gag att gcc atc ctg aag aag ctg gac	672
Pro Leu Glu Arg Val Tyr Gln Glu Ile Ala Ile Leu Lys Lys Leu Asp	
195 200 205	
cac gtg aat gtg gtc aaa ctg atc gag gtc ctg gat gac cca gct gag	720
His Val Asn Val Val Lys Leu Ile Glu Val Leu Asp Asp Pro Ala Glu	
210 215 220	
gac aac ctc tat ttg gtg ttt gac ctc ctg aga aag ggg ccc gtc atg	768
Asp Asn Leu Tyr Leu Val Phe Asp Leu Leu Arg Lys Gly Pro Val Met	
225 230 235	
gaa gtg ccc tgt gac aag tcc ttc tcg gag gag caa gct cgc ctc tac	816
Glu Val Pro Cys Asp Lys Ser Phe Ser Glu Glu Gln Ala Arg Leu Tyr	
240 245 250 255	
ctg cgg gac gtc atc ctg ggc ctc gag tac ttg cac tgc cag aag atc	864
Leu Arg Asp Val Ile Leu Gly Leu Glu Tyr Leu His Cys Gln Lys Ile	
260 265 270	
gtc cac agg gac atc aag cca tcc aac ctg ctc ctg ggg gat gat ggg	912
Val His Arg Asp Ile Lys Pro Ser Asn Leu Leu Leu Gly Asp Asp Gly	
275 280 285	
cac gtg aag atc gcc gac ttt ggc gtc agc aac cag ttt gag ggg aac	960
His Val Lys Ile Ala Asp Phe Gly Val Ser Asn Gln Phe Glu Gly Asn	
290 295 300	
gac gct cag ctg tcc agc acg gcg gga acc cca gca ttc atg gcc ccc	1008
Asp Ala Gln Leu Ser Ser Thr Ala Gly Thr Pro Ala Phe Met Ala Pro	
305 310 315	
gag gcc att tct gat tcc ggc cag agc ttc agt ggg aag gcc ttg gat	1056
Glu Ala Ile Ser Asp Ser Gly Gln Ser Phe Ser Gly Lys Ala Leu Asp	
320 325 330 335	
gta tgg gcc act ggc gtc acg ctg tac tgc ttt gtc tat ggg aag tgc	1104
Val Trp Ala Thr Gly Val Thr Leu Tyr Cys Phe Val Tyr Gly Lys Cys	
340 345 350	
ccg ttc atc gac gat ttc atc ctg gcc ctc cac agg aag atc aag aat	1152
Pro Phe Ile Asp Asp Phe Ile Leu Ala Leu His Arg Lys Ile Lys Asn	
355 360 365	

gag ccc gtg gtg ttt cct gag ggg cca gaa atc agc gag gag ctc aag 1200  
 Glu Pro Val Val Phe Pro Glu Gly Pro Glu Ile Ser Glu Glu Leu Lys  
 370 375 380

gac ctg atc ctg aag atg tta gac aag aat ccc gag acg aga att ggg 1248  
 Asp Leu Ile Leu Lys Met Leu Asp Lys Asn Pro Glu Thr Arg Ile Gly  
 385 390 395

gtg cca gac atc aag ttg cac cct tgg gtg acc aag aac ggg gag gag 1296  
 Val Pro Asp Ile Lys Leu His Pro Trp Val Thr Lys Asn Gly Glu Glu  
 400 405 410 415

ccc ctt cct tcg gag gag gag cac tgc agc gtg gtg gag gtg aca gag 1344  
 Pro Leu Pro Ser Glu Glu Glu His Cys Ser Val Val Glu Val Thr Glu  
 420 425 430

gag gag gtt aag aac tca gtc agg ctc atc ccc agc tgg acc acg gtg 1392  
 Glu Glu Val Lys Asn Ser Val Arg Leu Ile Pro Ser Trp Thr Thr Val  
 435 440 445

atc ctg gtg aag tcc atg ctg agg aag cgt tcc ttt ggg aac ccg ttt 1440  
 Ile Leu Val Lys Ser Met Leu Arg Lys Arg Ser Phe Gly Asn Pro Phe  
 450 455 460

gag ccc caa gca cgg agg gaa gag cga tcc atg tct gct cca gga aac 1488  
 Glu Pro Gln Ala Arg Arg Glu Glu Arg Ser Met Ser Ala Pro Gly Asn  
 465 470 475

cta ctg gtg aaa gaa ggg ttt ggt gaa ggg ggc aag agc cca gag ctc 1536  
 Leu Leu Val Lys Glu Gly Phe Gly Glu Gly Gly Lys Ser Pro Glu Leu  
 480 485 490 495

ccc ggc gtc cag gaa gac gag gct gca tcc tgagcccctg catgcaccca 1586  
 Pro Gly Val Gln Glu Asp Glu Ala Ala Ser  
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gggccacccg gcagcacact catcc 1611

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 <212>PRT  
 <213> Homo sapiens

<400>56  
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 20 25 30

Gly Gly Pro Glu Pro Thr Arg Asn Gly Val Asp Pro Pro Pro Arg Ala  
 35 40 45

Arg Ala Ala Ser Val Ile Pro Gly Ser Thr Ser Arg Leu Leu Pro Ala  
 50 55 60

Arg Pro Ser Leu Ser Ala Arg Lys Leu Ser Leu Gln Glu Arg Pro Ala  
 65 70 75 80  
 Gly Ser Tyr Leu Glu Ala Gln Ala Gly Pro Tyr Ala Thr Gly Pro Ala  
 85 90 95  
 Ser His Ile Ser Pro Arg Ala Trp Arg Arg Pro Thr Ile Glu Ser His  
 100 105 110  
 His Val Ala Ile Ser Asp Ala Glu Asp Cys Val Gln Leu Asn Gln Tyr  
 115 120 125  
 Lys Leu Gln Ser Glu Ile Gly Lys Gly Ala Tyr Gly Val Val Arg Leu  
 130 135 140  
 Ala Tyr Asn Glu Ser Glu Asp Arg His Tyr Ala Met Lys Val Leu Ser  
 145 150 155 160  
 Lys Lys Lys Leu Leu Lys Gln Tyr Gly Phe Pro Arg Arg Pro Pro Pro  
 165 170 175  
 Arg Gly Ser Gln Ala Ala Gln Gly Gly Pro Ala Lys Gln Leu Leu Pro  
 180 185 190  
 Leu Glu Arg Val Tyr Gln Glu Ile Ala Ile Leu Lys Lys Leu Asp His  
 195 200 205  
 Val Asn Val Val Lys Leu Ile Glu Val Leu Asp Asp Pro Ala Glu Asp  
 210 215 220  
 Asn Leu Tyr Leu Val Phe Asp Leu Leu Arg Lys Gly Pro Val Met Glu  
 225 230 235 240  
 Val Pro Cys Asp Lys Ser Phe Ser Glu Glu Gln Ala Arg Leu Tyr Leu  
 245 250 255  
 Arg Asp Val Ile Leu Gly Leu Glu Tyr Leu His Cys Gln Lys Ile Val  
 260 265 270  
 His Arg Asp Ile Lys Pro Ser Asn Leu Leu Leu Gly Asp Asp Gly His  
 275 280 285  
 Val Lys Ile Ala Asp Phe Gly Val Ser Asn Gln Phe Glu Gly Asn Asp  
 290 295 300  
 Ala Gln Leu Ser Ser Thr Ala Gly Thr Pro Ala Phe Met Ala Pro Glu  
 305 310 315 320  
 Ala Ile Ser Asp Ser Gly Gln Ser Phe Ser Gly Lys Ala Leu Asp Val  
 325 330 335  
 Trp Ala Thr Gly Val Thr Leu Tyr Cys Phe Val Tyr Gly Lys Cys Pro  
 340 345 350  
 Phe Ile Asp Asp Phe Ile Leu Ala Leu His Arg Lys Ile Lys Asn Glu  
 355 360 365

Pro Val Val Phe Pro Glu Gly Pro Glu Ile Ser Glu Glu Leu Lys Asp  
 370 375 380

Leu Ile Leu Lys Met Leu Asp Lys Asn Pro Glu Thr Arg Ile Gly Val  
 385 390 395 400

Pro Asp Ile Lys Leu His Pro Trp Val Thr Lys Asn Gly Glu Glu Pro  
 405 410 415

Leu Pro Ser Glu Glu Glu His Cys Ser Val Val Glu Val Thr Glu Glu  
 420 425 430

Glu Val Lys Asn Ser Val Arg Leu Ile Pro Ser Trp Thr Thr Val Ile  
 435 440 445

Leu Val Lys Ser Met Leu Arg Lys Arg Ser Phe Gly Asn Pro Phe Glu  
 450 455 460

Pro Gln Ala Arg Arg Glu Glu Arg Ser Met Ser Ala Pro Gly Asn Leu  
 465 470 475 480

Leu Val Lys Glu Gly Phe Gly Glu Gly Gly Lys Ser Pro Glu Leu Pro  
 485 490 495

Gly Val Gln Glu Asp Glu Ala Ala Ser  
 500 505

<210>57

<211>1725

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(52) ..(1681)

<400>57

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 Met Glu Gly Gly Pro Ala Val Cys Cys Gln Asp Pro Arg Ala Glu  
 5 10 15

ctg gta gaa cgg gtg gca gcc atc gat gtg act cac ttg gag gag gca 144  
 Leu Val Glu Arg Val Ala Ala Ile Asp Val Thr His Leu Glu Ala  
 20 25 30

gat ggt ggc cca gag cct act aga aac ggt gtg gac ccc cca cca cgg 192  
 Asp Gly Gly Pro Glu Pro Thr Arg Asn Gly Val Asp Pro Pro Pro Arg  
 35 40 45

gcc aga gct gcc tct gtg atc cct ggc agt act tca aga ctg ctc cca 240  
 Ala Arg Ala Ala Ser Val Ile Pro Gly Ser Thr Ser Arg Leu Leu Pro  
 50 55 60

gcc cgg cct agc ctc tca gcc agg aag ctt tcc cta cag gag cgg cca 288  
Ala Arg Pro Ser Leu Ser Ala Arg Lys Leu Ser Leu Gln Glu Arg Pro  
65 70 75

gca gga agc tat ctg gag gcg cag gct ggg cct tat gcc acg ggg cct 336  
Ala Gly Ser Tyr Leu Glu Ala Gln Ala Gly Pro Tyr Ala Thr Gly Pro  
80 85 90 95

gcc agc cac atc tcc ccc cgg gcc tgg cgg agg ccc acc atc gag tcc 384  
Ala Ser His Ile Ser Pro Arg Ala Trp Arg Arg Pro Thr Ile Glu Ser  
100 105 110

cac cac gtg gcc atc tca gat gca gag gac tgc gtg cag ctg aac cag 432  
His His Val Ala Ile Ser Asp Ala Glu Asp Cys Val Gln Leu Asn Gln  
115 120 125

tac aag ctg cag agt gag att ggc aag ggt gcc tac ggt gtg gtg agg 480  
Tyr Lys Leu Gln Ser Glu Ile Gly Lys Gly Ala Tyr Gly Val Val Arg  
130 135 140

ctg gcc tac aac gaa agt gaa gac aga cac tat gca atg aaa gtc ctt 528  
Leu Ala Tyr Asn Glu Ser Glu Asp Arg His Tyr Ala Met Lys Val Leu  
145 150 155

tcc aaa aag aag tta ctg aag cag tat ggc ttt cca cgt cgc cct ccc 576  
Ser Lys Lys Lys Leu Leu Lys Gln Tyr Gly Phe Pro Arg Arg Pro Pro  
160 165 170 175

ccg aga ggg tcc cag gct gcc cag gga gga cca gcc aag cag ctg ctg 624  
Pro Arg Gly Ser Gln Ala Ala Gln Gly Gly Pro Ala Lys Gln Leu Leu  
180 185 190

ccc ctg gag cgg gtg tac cag gag att gcc atc ctg aag aag ctg gac 672  
Pro Leu Glu Arg Val Tyr Gln Glu Ile Ala Ile Leu Lys Lys Leu Asp  
195 200 205

cac gtg aat gtg gtc aaa ctg atc gag gtc ctg gat gac ccg gct gag 720  
His Val Asn Val Val Lys Leu Ile Glu Val Leu Asp Asp Pro Ala Glu  
210 215 220

gac aac ctc tat ttg gcc ctg cag aac cag gcc cag aat atc cag tta 768  
Asp Asn Leu Tyr Leu Ala Leu Gln Asn Gln Ala Gln Asn Ile Gln Leu  
225 230 235

gat tca aca aat atc gcc aag tcc cac tcc ctg ctt ccc tct gag cag 816  
Asp Ser Thr Asn Ile Ala Lys Ser His Ser Leu Leu Pro Ser Glu Gln  
240 245 250 255

caa gac agt gga tcc acg tgg gct gcg cgc tca gtg ttt gac ctc ctg 864  
Gln Asp Ser Gly Ser Thr Trp Ala Ala Arg Ser Val Phe Asp Leu Leu  
260 265 270

aga aag ggg ccc gtc atg gaa gtg ccc tgt gac aag ccc ttc tcg gag 912  
Arg Lys Gly Pro Val Met Glu Val Pro Cys Asp Lys Pro Phe Ser Glu  
275 280 285

gag caa gct cgc ctc tac ctg cgg gac gtc atc ctg ggc ctc gag tac 960

Glu Gln Ala Arg Leu Tyr Leu Arg Asp Val Ile Leu Gly Leu Glu Tyr	
290 295 300	
ttg cac tgc cag aag atc gtc cac agg gac atc aag cca tcc aac ctg	1008
Leu His Cys Gln Lys Ile Val His Arg Asp Ile Lys Pro Ser Asn Leu	
305 310 315	
ctc ctg ggg gat gat ggg cac gtg aag atc gcc gac ttt ggc gtc agc	1056
Leu Leu Gly Asp Asp Gly His Val Lys Ile Ala Asp Phe Gly Val Ser	
320 325 330 335	
aac cag ttt gag ggg aac gac gct cag ctg tcc agc acg gcg gga acc	1104
Asn Gln Phe Glu Gly Asn Asp Ala Gln Leu Ser Ser Thr Ala Gly Thr	
340 345 350	
cca gca ttc atg gcc ccc gag gcc att tct gat tcc ggc cag agc ttc	1152
Pro Ala Phe Met Ala Pro Glu Ala Ile Ser Asp Ser Gly Gln Ser Phe	
355 360 365	
agt ggg aag gcc ttg gat gta tgg gcc act ggc gtc acg ttg tac tgc	1200
Ser Gly Lys Ala Leu Asp Val Trp Ala Thr Gly Val Thr Leu Tyr Cys	
370 375 380	
ttt gtc tat ggg aag tgc ccg ttc atc gac gat ttc atc ctg gcc ctc	1248
Phe Val Tyr Gly Lys Cys Pro Phe Ile Asp Asp Phe Ile Leu Ala Leu	
385 390 395	
cac agg aag acc aag aat gag ccc gtg gtg ttt cct gag ggg cca gaa	1296
His Arg Lys Thr Lys Asn Glu Pro Val Val Phe Pro Glu Gly Pro Glu	
400 405 410 415	
atc agc gag gag ctc aag gac ctg atc ctg aag atg tta gac aag aat	1344
Ile Ser Glu Glu Leu Lys Asp Leu Ile Leu Lys Met Leu Asp Lys Asn	
420 425 430	
ccc gag acg aga att ggg gtg cca gac atc aag ttg cac cct tgg gtg	1392
Pro Glu Thr Arg Ile Gly Val Pro Asp Ile Lys Leu His Pro Trp Val	
435 440 445	
acc aag aac ggg gag gag ccc ctt cct tcg gag gag gag cac tgc agc	1440
Thr Lys Asn Gly Glu Glu Pro Leu Pro Ser Glu Glu Glu His Cys Ser	
450 455 460	
gtg gtg gag gtg aca gag gag gag gtt aag aac tca gtc agg ctc atc	1488
Val Val Glu Val Thr Glu Glu Glu Val Lys Asn Ser Val Arg Leu Ile	
465 470 475	
ccc agc tgg acc acg gtg atc ctg gtg aag tcc atg ctg agg aag cgt	1536
Pro Ser Trp Thr Thr Val Ile Leu Val Lys Ser Met Leu Arg Lys Arg	
480 485 490 495	
tcc ttt ggg aac ccg ttt gag ccc caa gca cgg agg gaa gag cga tcc	1584
Ser Phe Gly Asn Pro Phe Glu Pro Gln Ala Arg Arg Glu Glu Arg Ser	
500 505 510	
atg tct gct cca gga aac cta ctg gtg aaa gaa ggg ttt ggt gaa ggg	1632
Met Ser Ala Pro Gly Asn Leu Leu Val Lys Glu Gly Phe Gly Glu Gly	

515                      520                      525  
 ggc aag agc cca gag ctc ccc ggc gtc cag gaa gac gag gct gca tcc 1680  
 Gly Lys Ser Pro Glu Leu Pro Gly Val Gln Glu Asp Glu Ala Ala Ser  
           530                      535                      540  
 tgagccctg catgcacca gggccacccg gcagcacact catcc 1725

<210>58  
 <211>543  
 <212>PRT  
 <213> Homo sapiens

<400>58  
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                                   20                                  25                                  30  
 Gly Gly Pro Glu Pro Thr Arg Asn Gly Val Asp Pro Pro Pro Arg Ala  
                                   35                                  40                                  45  
 Arg Ala Ala Ser Val Ile Pro Gly Ser Thr Ser Arg Leu Leu Pro Ala  
                                   50                                  55                                  60  
 Arg Pro Ser Leu Ser Ala Arg Lys Leu Ser Leu Gln Glu Arg Pro Ala  
                                   65                                  70                                  75                                  80  
 Gly Ser Tyr Leu Glu Ala Gln Ala Gly Pro Tyr Ala Thr Gly Pro Ala  
                                   85                                  90                                  95  
 Ser His Ile Ser Pro Arg Ala Trp Arg Arg Pro Thr Ile Glu Ser His  
                                   100                                  105                                  110  
 His Val Ala Ile Ser Asp Ala Glu Asp Cys Val Gln Leu Asn Gln Tyr  
                                   115                                  120                                  125  
 Lys Leu Gln Ser Glu Ile Gly Lys Gly Ala Tyr Gly Val Val Arg Leu  
                                   130                                  135                                  140  
 Ala Tyr Asn Glu Ser Glu Asp Arg His Tyr Ala Met Lys Val Leu Ser  
                                   145                                  150                                  155                                  160  
 Lys Lys Lys Leu Leu Lys Gln Tyr Gly Phe Pro Arg Arg Pro Pro Pro  
                                   165                                  170                                  175  
 Arg Gly Ser Gln Ala Ala Gln Gly Gly Pro Ala Lys Gln Leu Leu Pro  
                                   180                                  185                                  190  
 Leu Glu Arg Val Tyr Gln Glu Ile Ala Ile Leu Lys Lys Leu Asp His  
                                   195                                  200                                  205  
 Val Asn Val Val Lys Leu Ile Glu Val Leu Asp Asp Pro Ala Glu Asp  
                                   210                                  215                                  220

Asn Leu Tyr Leu Ala Leu Gln Asn Gln Ala Gln Asn Ile Gln Leu Asp  
 225 230 235 240  
 Ser Thr Asn Ile Ala Lys Ser His Ser Leu Leu Pro Ser Glu Gln Gln  
 245 250 255  
 Asp Ser Gly Ser Thr Trp Ala Ala Arg Ser Val Phe Asp Leu Leu Arg  
 260 265 270  
 Lys Gly Pro Val Met Glu Val Pro Cys Asp Lys Pro Phe Ser Glu Glu  
 275 280 285  
 Gln Ala Arg Leu Tyr Leu Arg Asp Val Ile Leu Gly Leu Glu Tyr Leu  
 290 295 300  
 His Cys Gln Lys Ile Val His Arg Asp Ile Lys Pro Ser Asn Leu Leu  
 305 310 315 320  
 Leu Gly Asp Asp Gly His Val Lys Ile Ala Asp Phe Gly Val Ser Asn  
 325 330 335  
 Gln Phe Glu Gly Asn Asp Ala Gln Leu Ser Ser Thr Ala Gly Thr Pro  
 340 345 350  
 Ala Phe Met Ala Pro Glu Ala Ile Ser Asp Ser Gly Gln Ser Phe Ser  
 355 360 365  
 Gly Lys Ala Leu Asp Val Trp Ala Thr Gly Val Thr Leu Tyr Cys Phe  
 370 375 380  
 Val Tyr Gly Lys Cys Pro Phe Ile Asp Asp Phe Ile Leu Ala Leu His  
 385 390 395 400  
 Arg Lys Thr Lys Asn Glu Pro Val Val Phe Pro Glu Gly Pro Glu Ile  
 405 410 415  
 Ser Glu Glu Leu Lys Asp Leu Ile Leu Lys Met Leu Asp Lys Asn Pro  
 420 425 430  
 Glu Thr Arg Ile Gly Val Pro Asp Ile Lys Leu His Pro Trp Val Thr  
 435 440 445  
 Lys Asn Gly Glu Glu Pro Leu Pro Ser Glu Glu Glu His Cys Ser Val  
 450 455 460  
 Val Glu Val Thr Glu Glu Glu Val Lys Asn Ser Val Arg Leu Ile Pro  
 465 470 475 480  
 Ser Trp Thr Thr Val Ile Leu Val Lys Ser Met Leu Arg Lys Arg Ser  
 485 490 495  
 Phe Gly Asn Pro Phe Glu Pro Gln Ala Arg Arg Glu Glu Arg Ser Met  
 500 505 510  
 Ser Ala Pro Gly Asn Leu Leu Val Lys Glu Gly Phe Gly Glu Gly Gly  
 515 520 525



Lys Ser Pro Glu Leu Pro Gly Val Gln Glu Asp Glu Ala Ala Ser  
530 535 540

<210>59  
<211>688  
<212>DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222>(15)..(669)  
<400>59

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gag ctg gcc cgc cgc gtg cgc gcc ctg cgg gag caa ctg aac agg ccg 98
Glu Leu Ala Arg Arg Val Arg Ala Leu Arg Glu Gln Leu Asn Arg Pro
      15 20 25

cgc gac tcc cag ctc tac gcg gtg gac tac gag acc ttg acg cgg ccg 146
Arg Asp Ser Gln Leu Tyr Ala Val Asp Tyr Glu Thr Leu Thr Arg Pro
      30 35 40

ttc tct gga cgc cgg ctg ccg gtc cgg gcc tgg gcc gac gtg cgc cgc 194
Phe Ser Gly Arg Arg Leu Pro Val Arg Ala Trp Ala Asp Val Arg Arg
      45 50 55 60

gag agc cgc ctc ttg cag ctg ctc ggc cgc ctc ccg ctc ttc ggc ctg 242
Glu Ser Arg Leu Leu Gln Leu Leu Gly Arg Leu Pro Leu Phe Gly Leu
      65 70 75

ggc cgc ctg gtc acg cgc aag tcc tgg ctg tgg cag cac gac gag ccg 290
Gly Arg Leu Val Thr Arg Lys Ser Trp Leu Trp Gln His Asp Glu Pro
      80 85 90

tgc tac tgg cgc ctc acg cgg gtg cgg ccc gac tac acg gcg cag aac 338
Cys Tyr Trp Arg Leu Thr Arg Val Arg Pro Asp Tyr Thr Ala Gln Asn
      95 100 105

ttg gac cac ggg aag gcc tgg ggc atc ctg acc ttc aaa ggt aag gct 386
Leu Asp His Gly Lys Ala Trp Gly Ile Leu Thr Phe Lys Gly Lys Ala
      110 115 120

cgg gag agc gcg cgg gag atc gaa cac gtc atg tac cat gac tgg cgg 434
Arg Glu Ser Ala Arg Glu Ile Glu His Val Met Tyr His Asp Trp Arg
      125 130 135 140

ctg gtg ccc aag cac gag gag gag gcc ttc acc gcg ttc acg ccg gcg 482
Leu Val Pro Lys His Glu Glu Glu Ala Phe Thr Ala Phe Thr Pro Ala
      145 150 155

ccg gaa gac agc ctg gcc tcc gtg ccg tac ccg cct ctc ctc cgg gcc 530
Pro Glu Asp Ser Leu Ala Ser Val Pro Tyr Pro Pro Leu Leu Arg Ala
      160 165 170

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atg att atc gca gaa cga cag aaa aat gga gac aca agc acc gag gag 578  
 Met Ile Ile Ala Glu Arg Gln Lys Asn Gly Asp Thr Ser Thr Glu Glu  
 175 180 185  
 ccc atg ctg aat gtg cag agg ata cgc atg gaa ccc tgg gat tac cct 626  
 Pro Met Leu Asn Val Gln Arg Ile Arg Met Glu Pro Trp Asp Tyr Pro  
 190 195 200  
 gca aaa cag gaa gac aaa gga agg gcc aag ggc acc ccc gtc 668  
 Ala Lys Gln Glu Asp Lys Gly Arg Ala Lys Gly Thr Pro Val  
 205 210 215  
 tagaatgccga gaaccagcgg 688

<210>60  
 <211>218  
 <212>PRT  
 <213> Homo sapiens

<400>60  
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 1 5 10 15  
 Arg Val Arg Ala Leu Arg Glu Gln Leu Asn Arg Pro Arg Asp Ser Gln  
 20 25 30  
 Leu Tyr Ala Val Asp Tyr Glu Thr Leu Thr Arg Pro Phe Ser Gly Arg  
 35 40 45  
 Arg Leu Pro Val Arg Ala Trp Ala Asp Val Arg Arg Glu Ser Arg Leu  
 50 55 60  
 Leu Gln Leu Leu Gly Arg Leu Pro Leu Phe Gly Leu Gly Arg Leu Val  
 65 70 75 80  
 Thr Arg Lys Ser Trp Leu Trp Gln His Asp Glu Pro Cys Tyr Trp Arg  
 85 90 95  
 Leu Thr Arg Val Arg Pro Asp Tyr Thr Ala Gln Asn Leu Asp His Gly  
 100 105 110  
 Lys Ala Trp Gly Ile Leu Thr Phe Lys Gly Lys Ala Arg Glu Ser Ala  
 115 120 125  
 Arg Glu Ile Glu His Val Met Tyr His Asp Trp Arg Leu Val Pro Lys  
 130 135 140  
 His Glu Glu Glu Ala Phe Thr Ala Phe Thr Pro Ala Pro Glu Asp Ser  
 145 150 155 160  
 Leu Ala Ser Val Pro Tyr Pro Pro Leu Leu Arg Ala Met Ile Ile Ala  
 165 170 175  
 Glu Arg Gln Lys Asn Gly Asp Thr Ser Thr Glu Glu Pro Met Leu Asn  
 180 185 190

Val Gln Arg Ile Arg Met Glu Pro Trp Asp Tyr Pro Ala Lys Gln Glu  
195 200 205

Asp Lys Gly Arg Ala Lys Gly Thr Pro Val  
210 215

<210>61

<211>894

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(11)..(860)

<400>61

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Met Lys Val Lys Val Ile Pro Val Leu Glu Asp Asn Tyr  
1 5 10

atg tac ctg gtc atc gag gag ctc acg cgc gag gcg gtg gcc gtg gac 97  
Met Tyr Leu Val Ile Glu Glu Leu Thr Arg Glu Ala Val Ala Val Asp  
15 20 25

gtg gct gtg ccc aag agg ctg ctg gag atc gtg ggc cgg gag ggg gtg 145  
Val Ala Val Pro Lys Arg Leu Leu Glu Ile Val Gly Arg Glu Gly Val  
30 35 40 45

tct ctg acc gct gtg ctg acc acc cac cat cac tgg gac cac gcg cgg 193  
Ser Leu Thr Ala Val Leu Thr Thr His His His Trp Asp His Ala Arg  
50 55 60

gga aac ccg gag ctg gcg cgg ctt cgt ccc ggg ctg gcg gtg ctg ggc 241  
Gly Asn Pro Glu Leu Ala Arg Leu Arg Pro Gly Leu Ala Val Leu Gly  
65 70 75

gcg gac gag cgc atc ttc tcg ctg acg cgc agg ctg gcg cac ggc gag 289  
Ala Asp Glu Arg Ile Phe Ser Leu Thr Arg Arg Leu Ala His Gly Glu  
80 85 90

gag ctg cag ttc ggg gcc atc cac gtg cgt tgc ctc ctg acg ccc ggc 337  
Glu Leu Gln Phe Gly Ala Ile His Val Arg Cys Leu Leu Thr Pro Gly  
95 100 105

cac acc gcc ggc cac atg agc tac ttc ctg tgg gag gac gat tgc ccg 385  
His Thr Ala Gly His Met Ser Tyr Phe Leu Trp Glu Asp Asp Cys Pro  
110 115 120 125

gac cca ccc gcc ctg ttc tcg ggt ggc gac gcg ctg tcg gtg gcc ggc 433  
Asp Pro Pro Ala Leu Phe Ser Gly Gly Asp Ala Leu Ser Val Ala Gly  
130 135 140

tgc ggc tcg tgc ctg gag ggc agc gcc cag cag atg tac cag agc ctg 481  
Cys Gly Ser Cys Leu Glu Gly Ser Ala Gln Gln Met Tyr Gln Ser Leu  
145 150 155

gcc gag ctg ggt acc ctg ccc ccc gag acg aag gtg ttc tgc ggc cac 529

Ala	Glu	Leu	Gly	Thr	Leu	Pro	Pro	Glu	Thr	Lys	Val	Phe	Cys	Gly	His		
		160					165					170					
gag cac acg ctt agc aac ctg gag ttt gcc cag aaa gtg gag ccc tgc 577																	
Glu	His	Thr	Leu	Ser	Asn	Leu	Glu	Phe	Ala	Gln	Lys	Val	Glu	Pro	Cys		
		175				180					185						
aac gac cac gtg aga gcc aag ctg tcc tgg gct cag aag agg gat gag 625																	
Asn	Asp	His	Val	Arg	Ala	Lys	Leu	Ser	Trp	Ala	Gln	Lys	Arg	Asp	Glu		
		190				195				200					205		
gat gac gtg ccc act gtg ccg tcc act ctg gcc gag gag cgc ctc tac 673																	
Asp	Asp	Val	Pro	Thr	Val	Pro	Ser	Thr	Leu	Gly	Glu	Glu	Arg	Leu	Tyr		
				210					215					220			
aac ccc ttc ctg cgg gtg gcg gag gag ccg gtg cgc aag ttc acg gcc 721																	
Asn	Pro	Phe	Leu	Arg	Val	Ala	Glu	Glu	Pro	Val	Arg	Lys	Phe	Thr	Gly		
			225					230					235				
aag gcg gtc ccc gcc gac gtc ctg gag gcg cta tgc aag gag cgg gcg 769																	
Lys	Ala	Val	Pro	Ala	Asp	Val	Leu	Glu	Ala	Leu	Cys	Lys	Glu	Arg	Ala		
		240					245					250					
cgc ttc gaa cag gcg gcc gag ccg cgg cag cca cag gcg cgg gcc ctc 817																	
Arg	Phe	Glu	Gln	Ala	Gly	Glu	Pro	Arg	Gln	Pro	Gln	Ala	Arg	Ala	Leu		
		255				260					265						
ctt gcg ctg cag tgg ggg ctc ctg agt gca gcc cca cac gac 859																	
Leu	Ala	Leu	Gln	Trp	Gly	Leu	Leu	Ser	Ala	Ala	Pro	His	Asp				
		270				275				280							
tgagccaccc agaccctcac agggctgggg cctgc 894																	

<210>62

<211>283

<212>PRT

<213> Homo sapiens

<400>62

Met	Lys	Val	Lys	Val	Ile	Pro	Val	Leu	Glu	Asp	Asn	Tyr	Met	Tyr	Leu		
	1			5					10					15			

Val	Ile	Glu	Glu	Leu	Thr	Arg	Glu	Ala	Val	Ala	Val	Asp	Val	Ala	Val		
		20					25					30					

Pro	Lys	Arg	Leu	Leu	Glu	Ile	Val	Gly	Arg	Glu	Gly	Val	Ser	Leu	Thr		
		35				40						45					

Ala	Val	Leu	Thr	Thr	His	His	His	Trp	Asp	His	Ala	Arg	Gly	Asn	Pro		
	50					55					60						

Glu	Leu	Ala	Arg	Leu	Arg	Pro	Gly	Leu	Ala	Val	Leu	Gly	Ala	Asp	Glu		
	65				70					75				80			

Arg	Ile	Phe	Ser	Leu	Thr	Arg	Arg	Leu	Ala	His	Gly	Glu	Glu	Leu	Gln		
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	--	--



30	35	40	45	
tct ctg acc gct gtg ctg acc acc cac cat cac tgg gac cac gcg cgg				193
Ser Leu Thr Ala Val Leu Thr Thr His His His Trp Asp His Ala Arg				
50	55	60		
gga aac ccg gag ctg gcg cgg ctt cgt ccc ggg ctg gcg gtg ctg ggc				241
Gly Asn Pro Glu Leu Ala Arg Leu Arg Pro Gly Leu Ala Val Leu Gly				
65	70	75		
gcg gac gag cgc atc ttc tcg ctg acg cgc agg ctg gcg cac ggc gag				289
Ala Asp Glu Arg Ile Phe Ser Leu Thr Arg Arg Leu Ala His Gly Glu				
80	85	90		
gag ctg cag ttc ggg gcc atc cac gtg cgt tgc ctc ctg acg ccc ggc				337
Glu Leu Gln Phe Gly Ala Ile His Val Arg Cys Leu Leu Thr Pro Gly				
95	100	105		
cac acc gcc ggc cac atg agc tac ttc ctg tgg gag gac gat tgc ccg				385
His Thr Ala Gly His Met Ser Tyr Phe Leu Trp Glu Asp Asp Cys Pro				
110	115	120	125	
gac cca ccc gcc ctg ttc tcg ggc gac gcg ctg tcg gtg gcc ggc tgc				433
Asp Pro Pro Ala Leu Phe Ser Gly Asp Ala Leu Ser Val Ala Gly Cys				
130	135	140		
ggc tcg tgc ctg gag ggc agc gcc cag cag atg tac cag agc ctg gcc				481
Gly Ser Cys Leu Glu Gly Ser Ala Gln Gln Met Tyr Gln Ser Leu Ala				
145	150	155		
gag ctg ggt acc ctg ccc ccc gag acg aag gtg ttc tgc ggc cac gag				529
Glu Leu Gly Thr Leu Pro Pro Glu Thr Lys Val Phe Cys Gly His Glu				
160	165	170		
cac aca ctt agc aac ctg gag ttt gcc cag aaa gtg gag ccc tgc aac				577
His Thr Leu Ser Asn Leu Glu Phe Ala Gln Lys Val Glu Pro Cys Asn				
175	180	185		
gac cac gtg aga gcc aag ctg tcc tgg gct aag aag agg gat gag gat				625
Asp His Val Arg Ala Lys Leu Ser Trp Ala Lys Lys Arg Asp Glu Asp				
190	195	200	205	
gac gtg ccc act gtg ccg tcg act ctg ggc gag gag cgc ctc tac aac				673
Asp Val Pro Thr Val Pro Ser Thr Leu Gly Glu Glu Arg Leu Tyr Asn				
210	215	220		
ccc ttc ctg cgg gtg gca gag gag ccg gtg cgc aag ttc acg ggc aag				721
Pro Phe Leu Arg Val Ala Glu Glu Pro Val Arg Lys Phe Thr Gly Lys				
225	230	235		
gcg gtc ccc gcc gac gtc ctg gag gcg cta tgc aag gag cgg gcg cgc				769
Ala Val Pro Ala Asp Val Leu Glu Ala Leu Cys Lys Glu Arg Ala Arg				
240	245	250		
ttc gaa cag gcg ggc gag ccg cgg cag cca cag gcg cgg gcc ctc ctt				817
Phe Glu Gln Ala Gly Glu Pro Arg Gln Pro Gln Ala Arg Ala Leu Leu				
255	260	265		

gcg ctg cag tgg ggg ctc ctg agt gca gcc cca cac gac tgagccaccc 866  
 Ala Leu Gln Trp Gly Leu Leu Ser Ala Ala Pro His Asp  
 270 275 280

agaccctcac agggctgggc ct 888

<210>64  
 <211>282  
 <212>PRT  
 <213> Homo sapiens

<400>64  
 Met Lys Val Lys Val Ile Pro Val Leu Glu Asp Asn Tyr Met Tyr Leu  
 1 5 10 15  
 Val Ile Glu Glu Leu Thr Arg Glu Ala Val Ala Val Asp Val Ala Val  
 20 25 30  
 Pro Lys Arg Leu Leu Glu Ile Val Gly Arg Glu Gly Val Ser Leu Thr  
 35 40 45  
 Ala Val Leu Thr Thr His His His Trp Asp His Ala Arg Gly Asn Pro  
 50 55 60  
 Glu Leu Ala Arg Leu Arg Pro Gly Leu Ala Val Leu Gly Ala Asp Glu  
 65 70 75 80  
 Arg Ile Phe Ser Leu Thr Arg Arg Leu Ala His Gly Glu Glu Leu Gln  
 85 90 95  
 Phe Gly Ala Ile His Val Arg Cys Leu Leu Thr Pro Gly His Thr Ala  
 100 105 110  
 Gly His Met Ser Tyr Phe Leu Trp Glu Asp Asp Cys Pro Asp Pro Pro  
 115 120 125  
 Ala Leu Phe Ser Gly Asp Ala Leu Ser Val Ala Gly Cys Gly Ser Cys  
 130 135 140  
 Leu Glu Gly Ser Ala Gln Gln Met Tyr Gln Ser Leu Ala Glu Leu Gly  
 145 150 155 160  
 Thr Leu Pro Pro Glu Thr Lys Val Phe Cys Gly His Glu His Thr Leu  
 165 170 175  
 Ser Asn Leu Glu Phe Ala Gln Lys Val Glu Pro Cys Asn Asp His Val  
 180 185 190  
 Arg Ala Lys Leu Ser Trp Ala Lys Lys Arg Asp Glu Asp Asp Val Pro  
 195 200 205  
 Thr Val Pro Ser Thr Leu Gly Glu Glu Arg Leu Tyr Asn Pro Phe Leu  
 210 215 220

Arg Val Ala Glu Glu Pro Val Arg Lys Phe Thr Gly Lys Ala Val Pro  
 225 230 235 240

Ala Asp Val Leu Glu Ala Leu Cys Lys Glu Arg Ala Arg Phe Glu Gln  
 245 250 255

Ala Gly Glu Pro Arg Gln Pro Gln Ala Arg Ala Leu Leu Ala Leu Gln  
 260 265 270

Trp Gly Leu Leu Ser Ala Ala Pro His Asp  
 275 280

<210>65

<211>882

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(4)..(850)

<400>65

acc atg aag gtc aag gtc atc ccc gtg ctc gag gac aac tac atg tac 48  
 Met Lys Val Lys Val Ile Pro Val Leu Glu Asp Asn Tyr Met Tyr  
 1 5 10 15

ctg gtc atc gag gag ctc acg cgc gag gcg gtg gcc gtg gac gtg gct 96  
 Leu Val Ile Glu Glu Leu Thr Arg Glu Ala Val Ala Val Asp Val Ala  
 20 25 30

gtg ccc aag agg ctg ctg gag atc gtg ggc cgg gag ggg gtg tct ctg 144  
 Val Pro Lys Arg Leu Leu Glu Ile Val Gly Arg Glu Gly Val Ser Leu  
 35 40 45

acc gct gtg ctg acc acc cac cat cac tgg gac cac gcg cgg gga aac 192  
 Thr Ala Val Leu Thr Thr His His His Trp Asp His Ala Arg Gly Asn  
 50 55 60

ccg gag ctg gcg cgg ctt cgt ccc ggg ctg gcg gtg ctg ggc gcg gac 240  
 Pro Glu Leu Ala Arg Leu Arg Pro Gly Leu Ala Val Leu Gly Ala Asp  
 65 70 75

gag cgc atc ttc tcg ctg acg cgc agg ctg gcg cac ggc gag gag ctg 288  
 Glu Arg Ile Phe Ser Leu Thr Arg Arg Leu Ala His Gly Glu Glu Leu  
 80 85 90 95

cgg ttc ggg gcc atc cac gtg cgt tgc ctc ctg acg ccc ggc cac acc 336  
 Arg Phe Gly Ala Ile His Val Arg Cys Leu Leu Thr Pro Gly His Thr  
 100 105 110

gcc ggc cac atg agc tac ttc ctg tgg gag gac gat tgc ccg gac cca 384  
 Ala Gly His Met Ser Tyr Phe Leu Trp Glu Asp Asp Cys Pro Asp Pro  
 115 120 125

ccc gcc ctg ttc tcg ggc gac gcg ctg tcg gtg gcc ggc tgc ggc tcg 432  
 Pro Ala Leu Phe Ser Gly Asp Ala Leu Ser Val Ala Gly Cys Gly Ser  
 130 135 140



tgc ctg gag ggc agc gcc cag cag atg tac cag agc ctg gcc gag ctg	480
Cys Leu Glu Gly Ser Ala Gln Gln Met Tyr Gln Ser Leu Ala Glu Leu	
145 150 155	
ggt acc ctg ccc ccc gag acg aag gtg ttc tgc ggc cac gag cac acg	528
Gly Thr Leu Pro Pro Glu Thr Lys Val Phe Cys Gly His Glu His Thr	
160 165 170 175	
ctt agc aac ctg gag ttt gcc cag aaa gtg gag ccc tgc aac gac cac	576
Leu Ser Asn Leu Glu Phe Ala Gln Lys Val Glu Pro Cys Asn Asp His	
180 185 190	
gtg aga gcc aag ctg tcc tgg gct aag aag agg gat gag gat gac gtg	624
Val Arg Ala Lys Leu Ser Trp Ala Lys Lys Arg Asp Glu Asp Asp Val	
195 200 205	
ccc act gtg ccg tcc act ctg ggc gag gag cgc ctc tac aac ccc ttc	672
Pro Thr Val Pro Ser Thr Leu Gly Glu Glu Arg Leu Tyr Asn Pro Phe	
210 215 220	
ctg cgg gtg gca gag gag ccg gtg cgc aag ttc acg ggc aag gcg gtc	720
Leu Arg Val Ala Glu Glu Pro Val Arg Lys Phe Thr Gly Lys Ala Val	
225 230 235	
ccc gcc gac gtc ctg gag gcg cta tgc aag gag cgg gcg cgc tcc gaa	768
Pro Ala Asp Val Leu Glu Ala Leu Cys Lys Glu Arg Ala Arg Ser Glu	
240 245 250 255	
cag gcg ggc gag ccg cgg cag cca cag gcg cgg gcc ctc ctt gcg ctg	816
Gln Ala Gly Glu Pro Arg Gln Pro Gln Ala Arg Ala Leu Leu Ala Leu	
260 265 270	
cag tgg ggg ctc ctg agt gca gcc cca cac gac tgagccaccc	859
Gln Trp Gly Leu Leu Ser Ala Ala Pro His Asp	
275 280	
agaccctcac agggctgggg cct	882

<210>66  
 <211>282  
 <212>PRT  
 <213> Homo sapiens

<400>66  
 Met Lys Val Lys Val Ile Pro Val Leu Glu Asp Asn Tyr Met Tyr Leu  
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 Val Ile Glu Glu Leu Thr Arg Glu Ala Val Ala Val Asp Val Ala Val  
 20 25 30  
 Pro Lys Arg Leu Leu Glu Ile Val Gly Arg Glu Gly Val Ser Leu Thr  
 35 40 45  
 Ala Val Leu Thr Thr His His His Trp Asp His Ala Arg Gly Asn Pro  
 50 55 60

Glu Leu Ala Arg Leu Arg Pro Gly Leu Ala Val Leu Gly Ala Asp Glu  
 65 70 75 80  
 Arg Ile Phe Ser Leu Thr Arg Arg Leu Ala His Gly Glu Glu Leu Arg  
 85 90 95  
 Phe Gly Ala Ile His Val Arg Cys Leu Leu Thr Pro Gly His Thr Ala  
 100 105 110  
 Gly His Met Ser Tyr Phe Leu Trp Glu Asp Asp Cys Pro Asp Pro Pro  
 115 120 125  
 Ala Leu Phe Ser Gly Asp Ala Leu Ser Val Ala Gly Cys Gly Ser Cys  
 130 135 140  
 Leu Glu Gly Ser Ala Gln Gln Met Tyr Gln Ser Leu Ala Glu Leu Gly  
 145 150 155 160  
 Thr Leu Pro Pro Glu Thr Lys Val Phe Cys Gly His Glu His Thr Leu  
 165 170 175  
 Ser Asn Leu Glu Phe Ala Gln Lys Val Glu Pro Cys Asn Asp His Val  
 180 185 190  
 Arg Ala Lys Leu Ser Trp Ala Lys Lys Arg Asp Glu Asp Asp Val Pro  
 195 200 205  
 Thr Val Pro Ser Thr Leu Gly Glu Glu Arg Leu Tyr Asn Pro Phe Leu  
 210 215 220  
 Arg Val Ala Glu Glu Pro Val Arg Lys Phe Thr Gly Lys Ala Val Pro  
 225 230 235 240  
 Ala Asp Val Leu Glu Ala Leu Cys Lys Glu Arg Ala Arg Ser Glu Gln  
 245 250 255  
 Ala Gly Glu Pro Arg Gln Pro Gln Ala Arg Ala Leu Leu Ala Leu Gln  
 260 265 270  
 Trp Gly Leu Leu Ser Ala Ala Pro His Asp  
 275 280

<210>67

<211>855

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(4) .. (823)

<400>67

acc atg aag gtc aag gtc atc ccc gtg ctc gag gac aac tac atg tac 48  
 Met Lys Val Lys Val Ile Pro Val Leu Glu Asp Asn Tyr Met Tyr  
 1 5 10 15

ctg gtc atc gag gag ctc acg cgc gag gcg gtg gcc gtg gac gtg gct 96

Leu Val Ile Glu Glu Leu Thr Arg Glu Ala Val Ala Val Asp Val Ala	
20 25 30	
gtg ccc aag agg ctg ctg gag atc gtg ggc cgg gag ggg gtg tct ctg	144
Val Pro Lys Arg Leu Leu Glu Ile Val Gly Arg Glu Gly Val Ser Leu	
35 40 45	
acc gct gtg ctg acc acc cac tat cac tgg gac cac gcg cgg gga aac	192
Thr Ala Val Leu Thr Thr His Tyr His Trp Asp His Ala Arg Gly Asn	
50 55 60	
ccg gag ctg gcg cgg ctt cgt ccc ggg ctg gcg gtg ctg ggc gcg gac	240
Pro Glu Leu Ala Arg Leu Arg Pro Gly Leu Ala Val Leu Gly Ala Asp	
65 70 75	
gag cgc atc ttc tcg ctg acg cgc agg ctg gcg cac ggc gag gag ctg	288
Glu Arg Ile Phe Ser Leu Thr Arg Arg Leu Ala His Gly Glu Glu Leu	
80 85 90 95	
cgg ttc ggg gcc atc cac gtg cgt tgc ctc ctg acg ccc ggc cac acc	336
Arg Phe Gly Ala Ile His Val Arg Cys Leu Leu Thr Pro Gly His Thr	
100 105 110	
gcc ggc cac atg agc tac ttc ctg tgg gag gac gat tgc ccg gac cca	384
Ala Gly His Met Ser Tyr Phe Leu Trp Glu Asp Asp Cys Pro Asp Pro	
115 120 125	
ccc gcc ctg ttc tcg ggc gac gcg ctg tcg gtg gcc ggc tgc ggc tcg	432
Pro Ala Leu Phe Ser Gly Asp Ala Leu Ser Val Ala Gly Cys Gly Ser	
130 135 140	
tgc ctg gag ggc agc gcc cag cag atg tac cag agc ctg gcc gag ctg	480
Cys Leu Glu Gly Ser Ala Gln Gln Met Tyr Gln Ser Leu Ala Glu Leu	
145 150 155	
ggt acc ctg ccc ccc gag acg aag gtg ttc tgc ggc cac gag cac acg	528
Gly Thr Leu Pro Pro Glu Thr Lys Val Phe Cys Gly His Glu His Thr	
160 165 170 175	
ctt agc aac ctg gag ttt gcc cag aaa gtg gag ccc tgc aac gac cac	576
Leu Ser Asn Leu Glu Phe Ala Gln Lys Val Glu Pro Cys Asn Asp His	
180 185 190	
aag agg gat gag gat gac gtg ccc act gtg ccg tcg act ctg ggc gag	624
Lys Arg Asp Glu Asp Asp Val Pro Thr Val Pro Ser Thr Leu Gly Glu	
195 200 205	
gag cgc ctc tac aac ccc ttc ctg cgg gtg gca gag gag ccg gtg cgc	672
Glu Arg Leu Tyr Asn Pro Phe Leu Arg Val Ala Glu Glu Pro Val Arg	
210 215 220	
aag ttc acg ggc aag gcg gtc ccc gcc gac gtc ctg gag gcg cta tgc	720
Lys Phe Thr Gly Lys Ala Val Pro Ala Asp Val Leu Glu Ala Leu Cys	
225 230 235	
aag gag cgg gcg cgc ttc gaa cag gcg ggc gag ccg cgg cag cca cag	768
Lys Glu Arg Ala Arg Phe Glu Gln Ala Gly Glu Pro Arg Gln Pro Gln	



Phe Thr Gly Lys Ala Val Pro Ala Asp Val Leu Glu Ala Leu Cys Lys  
 225 230 235 240

Glu Arg Ala Arg Phe Glu Gln Ala Gly Glu Pro Arg Gln Pro Gln Ala  
 245 250 255

Arg Ala Leu Leu Ala Leu Gln Trp Gly Leu Leu Ser Ala Ala Pro His  
 260 265 270

Asp

<210>69

<211>2109

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (26) .. (2054)

<400>69

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Met Ala Ala Lys Asn Ile Leu Tyr Asp	
1 5	
tggtcgcgcg ggc aag ctg tac cag ggc cag gtg gac ttc gcc ttc ttc	100
Trp Ala Ala Gly Lys Leu Tyr Gln Gly Gln Val Asp Phe Ala Phe Phe	
10 15 20 25	
atg ccc tgc ggc gag ctg ctg gag agg ccg ggc acg cgc agc ctg gct	148
Met Pro Cys Gly Glu Leu Leu Glu Arg Pro Gly Thr Arg Ser Leu Ala	
30 35 40	
gac ctg atc ctg gac cag tgc ccc gac cgc ggc gcg ccg gtg ccg cag	196
Asp Leu Ile Leu Asp Gln Cys Pro Asp Arg Gly Ala Pro Val Pro Gln	
45 50 55	
atg ctg gcc cag ccg cag cgg ctg ctc ttc atc ctg gac ggc gcg gac	244
Met Leu Ala Gln Pro Gln Arg Leu Leu Phe Ile Leu Asp Gly Ala Asp	
60 65 70	
gag ctg ccg gcg ctg ggg ggc ccc gag gcc gcg ccc tgc aca gac ccc	292
Glu Leu Pro Ala Leu Gly Gly Pro Glu Ala Ala Pro Cys Thr Asp Pro	
75 80 85	
ttc gag gcg gcg agc ggc gcg cgg gtg cta ggc ggg ctg ctg agt aag	340
Phe Glu Ala Ala Ser Gly Ala Arg Val Leu Gly Gly Leu Leu Ser Lys	
90 95 100 105	
gcg ctg ctg ccc acg gcc ctc ctg ctg gtg acc acg cgc gcc gcc gcc	388
Ala Leu Leu Pro Thr Ala Leu Leu Leu Val Thr Thr Arg Ala Ala Ala	
110 115 120	
ccc ggg agg ctg cag ggc cgc ctg tgt tcc ccg cag tgc gcc gag gtg	436
Pro Gly Arg Leu Gln Gly Arg Leu Cys Ser Pro Gln Cys Ala Glu Val	
125 130 135	

cgc ggc ttc tcc gac aag gac aag aag aag tat ttc tac aag ttc ttc	484
Arg Gly Phe Ser Asp Lys Asp Lys Lys Lys Tyr Phe Tyr Lys Phe Phe	
140 145 150	
cgg gat gag agg agg gcc gag cgc gcc tac cgc ttc gtg aag gag aac	532
Arg Asp Glu Arg Arg Ala Glu Arg Ala Tyr Arg Phe Val Lys Glu Asn	
155 160 165	
gag acg ctg ttc gcg ctg tgc ttc gtg ccc ttc gtg tgc tgg atc gtg	580
Glu Thr Leu Phe Ala Leu Cys Phe Val Pro Phe Val Cys Trp Ile Val	
170 175 180 185	
tgc acc gtg ctg cgc cag cag ctg gag ctc ggt cgg gac ctg tgc cgc	628
Cys Thr Val Leu Arg Gln Gln Leu Glu Leu Gly Arg Asp Leu Ser Arg	
190 195 200	
acg tcc aag acc acc acg tca gtg tac ctg ctt ttc atc acc agc gtt	676
Thr Ser Lys Thr Thr Thr Ser Val Tyr Leu Leu Phe Ile Thr Ser Val	
205 210 215	
ctg agc tgc gct ccg gta gcc gac ggg ccc cgg ttg cag ggc gac ctg	724
Leu Ser Ser Ala Pro Val Ala Asp Gly Pro Arg Leu Gln Gly Asp Leu	
220 225 230	
cgc aat ctg tgc cgc ctg gcc cgc gag ggc gtc ctc gga cgc agg gcg	772
Arg Asn Leu Cys Arg Leu Ala Arg Glu Gly Val Leu Gly Arg Arg Ala	
235 240 245	
cag ttt gcc gag aag gaa ctg gag caa ctg gag ctt cgt ggc tcc aaa	820
Gln Phe Ala Glu Lys Glu Leu Glu Gln Leu Glu Leu Arg Gly Ser Lys	
250 255 260 265	
gtg cag acg ctg ttt ctc agc aaa aag gag ctg ccg ggc gtg ctg gag	868
Val Gln Thr Leu Phe Leu Ser Lys Lys Glu Leu Pro Gly Val Leu Glu	
270 275 280	
aca gag gtc acc tac cag ttc atc gac cag agc ttc cag gag tcc ttc	916
Thr Glu Val Thr Tyr Gln Phe Ile Asp Gln Ser Phe Gln Glu Ser Phe	
285 290 295	
gcg gca ctg tcc tac ctg ctg gag gac ggc ggg gtg ccc agg acc gcg	964
Ala Ala Leu Ser Tyr Leu Leu Glu Asp Gly Gly Val Pro Arg Thr Ala	
300 305 310	
gct ggc ggc gtt ggg aca ctc ctg cgt ggg gac gcc cag ccg cac agc	1012
Ala Gly Gly Val Gly Thr Leu Leu Arg Gly Asp Ala Gln Pro His Ser	
315 320 325	
cac ttg gtg ctc acc acg cgc ttc ctc ttc gga ctg ctg agc gcg gag	1060
His Leu Val Leu Thr Thr Arg Phe Leu Phe Gly Leu Leu Ser Ala Glu	
330 335 340 345	
cgg atg cgc gac atc gag cgc cac ttc ggc tgc atg gtt tca gag cgt	1108
Arg Met Arg Asp Ile Glu Arg His Phe Gly Cys Met Val Ser Glu Arg	
350 355 360	

gtg aag cag gag gcc ctg cgg tgg gtg cag gga cag gga cag ggc tgc Val Lys Gln Glu Ala Leu Arg Trp Val Gln Gly Gln Gly Gln Gly Cys	1156
365 370 375	
ccc gga gtg gca cca gag gtg acc gag ggg gcc aaa ggg ctc gag gac Pro Gly Val Ala Pro Glu Val Thr Glu Gly Ala Lys Gly Leu Glu Asp	1204
380 385 390	
acc gaa gag cca gag gag gag gag gag gga gag gag ccc aac tac cca Thr Glu Glu Pro Glu Glu Glu Glu Glu Gly Glu Glu Pro Asn Tyr Pro	1252
395 400 405	
ctg gag ttg ctg tac tgc ctg tac gag acg cag gag gac gcg ttt gtg Leu Glu Leu Leu Tyr Cys Leu Tyr Glu Thr Gln Glu Asp Ala Phe Val	1300
410 415 420 425	
cgc caa gcc ctg ggc cgg ttc ccg gag ctg gcg ctg cag cga gtg cgc Arg Gln Ala Leu Gly Arg Phe Pro Glu Leu Ala Leu Gln Arg Val Arg	1348
430 435 440	
ttc tgc cgc atg gac gtg gct gtt ctg agc tac tgc gtg agg tgc tgc Phe Cys Arg Met Asp Val Ala Val Leu Ser Tyr Cys Val Arg Cys Cys	1396
445 450 455	
cct gct gca cag gca ctg cgg ctg atc agc tgc aga ttg gtt gct gcg Pro Ala Ala Gln Ala Leu Arg Leu Ile Ser Cys Arg Leu Val Ala Ala	1444
460 465 470	
cag gag aag aag aag aag agc ctg ggg aag cgg ctc cag gcc agc ctg Gln Glu Lys Lys Lys Lys Ser Leu Gly Lys Arg Leu Gln Ala Ser Leu	1492
475 480 485	
ggc acc aca aaa caa ctg cca gcc tcc ctt ctt cat cca ctc ttt cag Gly Thr Thr Lys Gln Leu Pro Ala Ser Leu Leu His Pro Leu Phe Gln	1540
490 495 500 505	
gca atg act gac cca ctg tgc cat ctg agc agc ctc acg ctg tcc cac Ala Met Thr Asp Pro Leu Cys His Leu Ser Ser Leu Thr Leu Ser His	1588
510 515 520	
tgc aaa ctc cct gac gcg gtc tgc cga gac ctt tct gag gcc ctg agg Cys Lys Leu Pro Asp Ala Val Cys Arg Asp Leu Ser Glu Ala Leu Arg	1636
525 530 535	
gca gcc ccc gca ctg acg gag ctg ggc ctc ctc cac aac agg ctc agt Ala Ala Pro Ala Leu Thr Glu Leu Gly Leu Leu His Asn Arg Leu Ser	1684
540 545 550	
gag gca gga ctg cgt atg ctg agt gag ggc cta gcc tgg ccg cag tgc Glu Ala Gly Leu Arg Met Leu Ser Glu Gly Leu Ala Trp Pro Gln Cys	1732
555 560 565	
agg gtg cag acg gtc agg gta cag ctg cct gac ccc cag cga ggg ctc Arg Val Gln Thr Val Arg Val Gln Leu Pro Asp Pro Gln Arg Gly Leu	1780
570 575 580 585	
cag tac ctg gtg ggt atg ctt cgg cag agc cct gcc ctg acc acc ctg	1828

Gln Tyr Leu Val Gly Met Leu Arg Gln Ser Pro Ala Leu Thr Thr Leu  
 590 595 600  
 gat ctc agc ggc tgc caa ctg ccc gcc ccc atg gtg acc tac ctg tgt 1876  
 Asp Leu Ser Gly Cys Gln Leu Pro Ala Pro Met Val Thr Tyr Leu Cys  
 605 610 615  
 gca gtc ctg cag cac cag gga tgc ggc ctg cag acc ctc agt ctg gcc 1924  
 Ala Val Leu Gln His Gln Gly Cys Gly Leu Gln Thr Leu Ser Leu Ala  
 620 625 630  
 tct gtg gag ctg agc gag cag tca cta cag gag ctt cag gct gtg aag 1972  
 Ser Val Glu Leu Ser Glu Gln Ser Leu Gln Glu Leu Gln Ala Val Lys  
 635 640 645  
 aga gca aag ccg gat ctg gtc atc aca cac cca gcg ctg gac ggc cac 2020  
 Arg Ala Lys Pro Asp Leu Val Ile Thr His Pro Ala Leu Asp Gly His  
 650 655 660 665  
 cca caa cct ccc aag gaa ctc atc tcg acc ttc tgaggctctg 2063  
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<212>PRT

<213> Homo sapiens

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 Glu Arg Pro Gly Thr Arg Ser Leu Ala Asp Leu Ile Leu Asp Gln Cys  
 35 40 45  
 Pro Asp Arg Gly Ala Pro Val Pro Gln Met Leu Ala Gln Pro Gln Arg  
 50 55 60  
 Leu Leu Phe Ile Leu Asp Gly Ala Asp Glu Leu Pro Ala Leu Gly Gly  
 65 70 75 80  
 Pro Glu Ala Ala Pro Cys Thr Asp Pro Phe Glu Ala Ala Ser Gly Ala  
 85 90 95  
 Arg Val Leu Gly Gly Leu Leu Ser Lys Ala Leu Leu Pro Thr Ala Leu  
 100 105 110  
 Leu Leu Val Thr Thr Arg Ala Ala Ala Pro Gly Arg Leu Gln Gly Arg  
 115 120 125



Leu Cys Ser Pro Gln Cys Ala Glu Val Arg Gly Phe Ser Asp Lys Asp  
 130 135 140  
 Lys Lys Lys Tyr Phe Tyr Lys Phe Phe Arg Asp Glu Arg Arg Ala Glu  
 145 150 155 160  
 Arg Ala Tyr Arg Phe Val Lys Glu Asn Glu Thr Leu Phe Ala Leu Cys  
 165 170 175  
 Phe Val Pro Phe Val Cys Trp Ile Val Cys Thr Val Leu Arg Gln Gln  
 180 185 190  
 Leu Glu Leu Gly Arg Asp Leu Ser Arg Thr Ser Lys Thr Thr Thr Ser  
 195 200 205  
 Val Tyr Leu Leu Phe Ile Thr Ser Val Leu Ser Ser Ala Pro Val Ala  
 210 215 220  
 Asp Gly Pro Arg Leu Gln Gly Asp Leu Arg Asn Leu Cys Arg Leu Ala  
 225 230 235 240  
 Arg Glu Gly Val Leu Gly Arg Arg Ala Gln Phe Ala Glu Lys Glu Leu  
 245 250 255  
 Glu Gln Leu Glu Leu Arg Gly Ser Lys Val Gln Thr Leu Phe Leu Ser  
 260 265 270  
 Lys Lys Glu Leu Pro Gly Val Leu Glu Thr Glu Val Thr Tyr Gln Phe  
 275 280 285  
 Ile Asp Gln Ser Phe Gln Glu Ser Phe Ala Ala Leu Ser Tyr Leu Leu  
 290 295 300  
 Glu Asp Gly Gly Val Pro Arg Thr Ala Ala Gly Gly Val Gly Thr Leu  
 305 310 315 320  
 Leu Arg Gly Asp Ala Gln Pro His Ser His Leu Val Leu Thr Thr Arg  
 325 330 335  
 Phe Leu Phe Gly Leu Leu Ser Ala Glu Arg Met Arg Asp Ile Glu Arg  
 340 345 350  
 His Phe Gly Cys Met Val Ser Glu Arg Val Lys Gln Glu Ala Leu Arg  
 355 360 365  
 Trp Val Gln Gly Gln Gly Gln Gly Cys Pro Gly Val Ala Pro Glu Val  
 370 375 380  
 Thr Glu Gly Ala Lys Gly Leu Glu Asp Thr Glu Glu Pro Glu Glu Glu  
 385 390 395 400  
 Glu Glu Gly Glu Glu Pro Asn Tyr Pro Leu Glu Leu Leu Tyr Cys Leu  
 405 410 415  
 Tyr Glu Thr Gln Glu Asp Ala Phe Val Arg Gln Ala Leu Gly Arg Phe  
 420 425 430

Pro Glu Leu Ala Leu Gln Arg Val Arg Phe Cys Arg Met Asp Val Ala  
 435 440 445  
 Val Leu Ser Tyr Cys Val Arg Cys Cys Pro Ala Ala Gln Ala Leu Arg  
 450 455 460  
 Leu Ile Ser Cys Arg Leu Val Ala Ala Gln Glu Lys Lys Lys Lys Ser  
 465 470 475 480  
 Leu Gly Lys Arg Leu Gln Ala Ser Leu Gly Thr Thr Lys Gln Leu Pro  
 485 490 495  
 Ala Ser Leu Leu His Pro Leu Phe Gln Ala Met Thr Asp Pro Leu Cys  
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 His Leu Ser Ser Leu Thr Leu Ser His Cys Lys Leu Pro Asp Ala Val  
 515 520 525  
 Cys Arg Asp Leu Ser Glu Ala Leu Arg Ala Ala Pro Ala Leu Thr Glu  
 530 535 540  
 Leu Gly Leu Leu His Asn Arg Leu Ser Glu Ala Gly Leu Arg Met Leu  
 545 550 555 560  
 Ser Glu Gly Leu Ala Trp Pro Gln Cys Arg Val Gln Thr Val Arg Val  
 565 570 575  
 Gln Leu Pro Asp Pro Gln Arg Gly Leu Gln Tyr Leu Val Gly Met Leu  
 580 585 590  
 Arg Gln Ser Pro Ala Leu Thr Thr Leu Asp Leu Ser Gly Cys Gln Leu  
 595 600 605  
 Pro Ala Pro Met Val Thr Tyr Leu Cys Ala Val Leu Gln His Gln Gly  
 610 615 620  
 Cys Gly Leu Gln Thr Leu Ser Leu Ala Ser Val Glu Leu Ser Glu Gln  
 625 630 635 640  
 Ser Leu Gln Glu Leu Gln Ala Val Lys Arg Ala Lys Pro Asp Leu Val  
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Cys Gly Phe Cys Gln Ser Thr Thr Gly His Glu Pro Glu Met Val Glu	
235 240 245 250	
ctt gtg aac atc gag cct gtg tgc gtg cgg ggc ggc ctc tac gag gtg	817
Leu Val Asn Ile Glu Pro Val Cys Val Arg Gly Gly Leu Tyr Glu Val	
255 260 265	
gat gtg acc caa gga gag tgc tac ccg gtg tac tgg aac cgt gct gat	865
Asp Val Thr Gln Gly Glu Cys Tyr Pro Val Tyr Trp Asn Arg Ala Asp	
270 275 280	
aaa ata cca gta atg cgt gga cag tgg ttt att gac ggc act tgg cag	913
Lys Ile Pro Val Met Arg Gly Gln Trp Phe Ile Asp Gly Thr Trp Gln	
285 290 295	
cct cta gaa gag gaa gaa agt aat tta att gag caa gaa cat ctc aat	961
Pro Leu Glu Glu Glu Glu Ser Asn Leu Ile Glu Gln Glu His Leu Asn	
300 305 310	
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Cys Phe Arg Gly Gln Gln Met Gln Glu Asn Phe Asp Ile Glu Val Ser	
315 320 325 330	
aaa tcc ata gat gga aaa gat gct gtt cat agt ttc aag ttg agt cga	1057
Lys Ser Ile Asp Gly Lys Asp Ala Val His Ser Phe Lys Leu Ser Arg	
335 340 345	
aac cat gtg gac tgg cac agt gtg gat gaa gta tat ctt tat agt gat	1105
Asn His Val Asp Trp His Ser Val Asp Glu Val Tyr Leu Tyr Ser Asp	
350 355 360	
gca aca aca tct aaa att gca aga aca gtt acc caa aaa ctg gga ttt	1153
Ala Thr Thr Ser Lys Ile Ala Arg Thr Val Thr Gln Lys Leu Gly Phe	
365 370 375	
tct aaa gca tca agt agt ggt acc aga ctt cat aga ggt tat gta gaa	1201
Ser Lys Ala Ser Ser Ser Gly Thr Arg Leu His Arg Gly Tyr Val Glu	
380 385 390	
gaa gcc aca tta gaa gac aag cca tca cag act acc cat att gta ttt	1249
Glu Ala Thr Leu Glu Asp Lys Pro Ser Gln Thr Thr His Ile Val Phe	
395 400 405 410	
gtt gtg cat ggc att ggg cag aaa atg gac caa gga aga att atc aaa	1297
Val Val His Gly Ile Gly Gln Lys Met Asp Gln Gly Arg Ile Ile Lys	
415 420 425	
aat aca gct atg atg aga gaa gct gca aga aaa ata gaa gaa agg cat	1345
Asn Thr Ala Met Met Arg Glu Ala Ala Arg Lys Ile Glu Glu Arg His	
430 435 440	
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Phe Ser Asn His Ala Thr His Val Glu Phe Leu Pro Val Glu Trp Arg	

445	450	455	
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Ser Lys Leu Thr Leu Asp Gly Asp Thr Val Asp Ser Ile Thr Pro Asp			
460	465	470	
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Lys Val Arg Gly Leu Arg Asp Met Leu Asn Ser Ser Ala Met Asp Ile			
475	480	485	490
atg tat tat act agt cca ctt tat aga gat gaa cta gtt aaa ggc ctt			1537
Met Tyr Tyr Thr Ser Pro Leu Tyr Arg Asp Glu Leu Val Lys Gly Leu			
	495	500	505
cag caa gag ctg aat cga ttg tat tcc ctt ttc tgt tct cgg aat cca			1585
Gln Gln Glu Leu Asn Arg Leu Tyr Ser Leu Phe Cys Ser Arg Asn Pro			
	510	515	520
gac ttt gaa gaa aaa ggg ggt aaa gtc tca ata gta tca cat tcc ttg			1633
Asp Phe Glu Glu Lys Gly Gly Lys Val Ser Ile Val Ser His Ser Leu			
	525	530	535
gga tgt gta att act tat gac ata atg act ggc tgg aat cca gtt cgg			1681
Gly Cys Val Ile Thr Tyr Asp Ile Met Thr Gly Trp Asn Pro Val Arg			
	540	545	550
ctg tat gaa cag ttg ctg caa aag gaa gaa gag ttg cct gat gaa cga			1729
Leu Tyr Glu Gln Leu Leu Gln Lys Glu Glu Glu Leu Pro Asp Glu Arg			
555	560	565	570
tgg atg agc tat gaa gaa cga cat ctt ctt gat gaa ctc tat ata act			1777
Trp Met Ser Tyr Glu Glu Arg His Leu Leu Asp Glu Leu Tyr Ile Thr			
	575	580	585
aaa cga cgg ctg aag gaa ata gaa gaa cgg ctt cac gga ttg aaa gca			1825
Lys Arg Arg Leu Lys Glu Ile Glu Glu Arg Leu His Gly Leu Lys Ala			
	590	595	600
tca tct atg aca caa aca cct gcc tta aaa ttt aag gta gag aat ttc			1873
Ser Ser Met Thr Gln Thr Pro Ala Leu Lys Phe Lys Val Glu Asn Phe			
	605	610	615
ttc tgt atg gga tcc cca tta gca gtt ttc ttg gcg ttg cgt ggc atc			1921
Phe Cys Met Gly Ser Pro Leu Ala Val Phe Leu Ala Leu Arg Gly Ile			
	620	625	630
cgc cca gga aat act gga agt caa gac cat att ttg cct aga gag att			1969
Arg Pro Gly Asn Thr Gly Ser Gln Asp His Ile Leu Pro Arg Glu Ile			
635	640	645	650
tgt aac cgg tta cta aat att ttt cat cct aca gat cca gtg gct tat			2017
Cys Asn Arg Leu Leu Asn Ile Phe His Pro Thr Asp Pro Val Ala Tyr			
	655	660	665
aga tta gaa cca tta ata ctg aaa cac tac agc aac att tca cct gtc			2065
Arg Leu Glu Pro Leu Ile Leu Lys His Tyr Ser Asn Ile Ser Pro Val			
	670	675	680

cag atc cac tgg tac aat act tca aat cct tta cct tat gaa cat atg	2113
Gln Ile His Trp Tyr Asn Thr Ser Asn Pro Leu Pro Tyr Glu His Met	
685 690 695	
aag cca agc ttt ctc aac cca gct aaa gaa cct acc tca gtt tca gag	2161
Lys Pro Ser Phe Leu Asn Pro Ala Lys Glu Pro Thr Ser Val Ser Glu	
700 705 710	
aat gaa ggc att tca acc ata cca agc cct gtg acc tca cca gtt ttg	2209
Asn Glu Gly Ile Ser Thr Ile Pro Ser Pro Val Thr Ser Pro Val Leu	
715 720 725 730	
tcc cgc cga cac tat gga gaa tct ata aca aat ata ggc aaa gca agc	2257
Ser Arg Arg His Tyr Gly Glu Ser Ile Thr Asn Ile Gly Lys Ala Ser	
735 740 745	
ata tta ggt gct gct agc att gga aag gga ctt gga gga atg ttg ttc	2305
Ile Leu Gly Ala Ala Ser Ile Gly Lys Gly Leu Gly Gly Met Leu Phe	
750 755 760	
tca aga ttt gga cgt tca tct aca aca cag tca tct gaa aca tca aaa	2353
Ser Arg Phe Gly Arg Ser Ser Thr Thr Gln Ser Ser Glu Thr Ser Lys	
765 770 775	
gac tca atg gaa gat gag aag aag cca gtt gcc tca cct tct gct acc	2401
Asp Ser Met Glu Asp Glu Lys Lys Pro Val Ala Ser Pro Ser Ala Thr	
780 785 790	
acc gta ggg aca cag acc ctt cca cat agc agt tct ggc ttc ctc gat	2449
Thr Val Gly Thr Gln Thr Leu Pro His Ser Ser Ser Gly Phe Leu Asp	
795 800 805 810	
tct gca gtg gag ttg gat cac agg att gat ttt gaa ctc aga gaa ggc	2497
Ser Ala Val Glu Leu Asp His Arg Ile Asp Phe Glu Leu Arg Glu Gly	
815 820 825	
ctt gtg gag agc cgc tat tgg tca gct gtc acg tcg cat act gcc tat	2545
Leu Val Glu Ser Arg Tyr Trp Ser Ala Val Thr Ser His Thr Ala Tyr	
830 835 840	
tgg tca tcc ttg gat gtt gcc ctt ttt ctt tta acc ttc atg tat aaa	2593
Trp Ser Ser Leu Asp Val Ala Leu Phe Leu Leu Thr Phe Met Tyr Lys	
845 850 855	
cat gag cac gat gat gat gca aaa ccc aat tta gat cca atc	2635
His Glu His Asp Asp Asp Ala Lys Pro Asn Leu Asp Pro Ile	
860 865 870	
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c	2686

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                   20                  25                  30  
 Ala Phe Gly Gly Gly Val Cys Cys Phe Glu His Leu Pro Gly Gly Asp  
           35                  40                  45  
 Pro Asp Asp Gly Asp Val Pro Leu Ala Leu Leu Arg Gly Glu Pro Gly  
       50                  55                  60  
 Leu His Leu Ala Pro Gly Thr Asp Asp His Asn His His Leu Ala Leu  
   65                  70                  75                  80  
 Asp Pro Cys Leu Ser Asp Glu Asn Tyr Asp Phe Ser Ser Ala Glu Ser  
                   85                  90                  95  
 Gly Ser Ser Leu Arg Tyr Tyr Ser Glu Gly Glu Ser Gly Gly Gly Gly  
           100                  105                  110  
 Ser Ser Leu Ser Leu His Pro Pro Gln Gln Pro Pro Leu Val Pro Thr  
       115                  120                  125  
 Asn Ser Gly Gly Gly Gly Ala Thr Gly Gly Ser Pro Gly Glu Arg Lys  
   130                  135                  140  
 Arg Thr Arg Leu Gly Gly Pro Ala Ala Arg His Arg Tyr Glu Val Val  
  145                  150                  155                  160  
 Thr Glu Leu Gly Pro Glu Glu Val Arg Trp Phe Tyr Lys Glu Asp Lys  
           165                  170                  175  
 Lys Thr Trp Lys Pro Phe Ile Gly Tyr Asp Ser Leu Arg Ile Glu Leu  
       180                  185                  190  
 Ala Phe Arg Thr Leu Leu Gln Thr Thr Gly Ala Arg Pro Gln Gly Gly  
       195                  200                  205  
 Asp Arg Asp Gly Asp His Val Cys Ser Pro Thr Gly Pro Ala Ser Ser  
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 Ser Gly Glu Asp Asp Asp Glu Asp Arg Ala Cys Gly Phe Cys Gln Ser  
  225                  230                  235                  240  
 Thr Thr Gly His Glu Pro Glu Met Val Glu Leu Val Asn Ile Glu Pro  
           245                  250                  255  
 Val Cys Val Arg Gly Gly Leu Tyr Glu Val Asp Val Thr Gln Gly Glu  
       260                  265                  270

Cys Tyr Pro Val Tyr Trp Asn Arg Ala Asp Lys Ile Pro Val Met Arg  
 275 280 285  
 Gly Gln Trp Phe Ile Asp Gly Thr Trp Gln Pro Leu Glu Glu Glu Glu  
 290 295 300  
 Ser Asn Leu Ile Glu Gln Glu His Leu Asn Cys Phe Arg Gly Gln Gln  
 305 310 315 320  
 Met Gln Glu Asn Phe Asp Ile Glu Val Ser Lys Ser Ile Asp Gly Lys  
 325 330 335  
 Asp Ala Val His Ser Phe Lys Leu Ser Arg Asn His Val Asp Trp His  
 340 345 350  
 Ser Val Asp Glu Val Tyr Leu Tyr Ser Asp Ala Thr Thr Ser Lys Ile  
 355 360 365  
 Ala Arg Thr Val Thr Gln Lys Leu Gly Phe Ser Lys Ala Ser Ser Ser  
 370 375 380  
 Gly Thr Arg Leu His Arg Gly Tyr Val Glu Glu Ala Thr Leu Glu Asp  
 385 390 395 400  
 Lys Pro Ser Gln Thr Thr His Ile Val Phe Val Val His Gly Ile Gly  
 405 410 415  
 Gln Lys Met Asp Gln Gly Arg Ile Ile Lys Asn Thr Ala Met Met Arg  
 420 425 430  
 Glu Ala Ala Arg Lys Ile Glu Glu Arg His Phe Ser Asn His Ala Thr  
 435 440 445  
 His Val Glu Phe Leu Pro Val Glu Trp Arg Ser Lys Leu Thr Leu Asp  
 450 455 460  
 Gly Asp Thr Val Asp Ser Ile Thr Pro Asp Lys Val Arg Gly Leu Arg  
 465 470 475 480  
 Asp Met Leu Asn Ser Ser Ala Met Asp Ile Met Tyr Tyr Thr Ser Pro  
 485 490 495  
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 Leu Tyr Ser Leu Phe Cys Ser Arg Asn Pro Asp Phe Glu Glu Lys Gly  
 515 520 525  
 Gly Lys Val Ser Ile Val Ser His Ser Leu Gly Cys Val Ile Thr Tyr  
 530 535 540  
 Asp Ile Met Thr Gly Trp Asn Pro Val Arg Leu Tyr Glu Gln Leu Leu  
 545 550 555 560  
 Gln Lys Glu Glu Glu Leu Pro Asp Glu Arg Trp Met Ser Tyr Glu Glu  
 565 570 575



Arg His Leu Leu Asp Glu Leu Tyr Ile Thr Lys Arg Arg Leu Lys Glu  
 580 585 590  
 Ile Glu Glu Arg Leu His Gly Leu Lys Ala Ser Ser Met Thr Gln Thr  
 595 600 605  
 Pro Ala Leu Lys Phe Lys Val Glu Asn Phe Phe Cys Met Gly Ser Pro  
 610 615 620  
 Leu Ala Val Phe Leu Ala Leu Arg Gly Ile Arg Pro Gly Asn Thr Gly  
 625 630 635 640  
 Ser Gln Asp His Ile Leu Pro Arg Glu Ile Cys Asn Arg Leu Leu Asn  
 645 650 655  
 Ile Phe His Pro Thr Asp Pro Val Ala Tyr Arg Leu Glu Pro Leu Ile  
 660 665 670  
 Leu Lys His Tyr Ser Asn Ile Ser Pro Val Gln Ile His Trp Tyr Asn  
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 Thr Ser Asn Pro Leu Pro Tyr Glu His Met Lys Pro Ser Phe Leu Asn  
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 Ile Gly Lys Gly Leu Gly Gly Met Leu Phe Ser Arg Phe Gly Arg Ser  
 755 760 765  
 Ser Thr Thr Gln Ser Ser Glu Thr Ser Lys Asp Ser Met Glu Asp Glu  
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 Lys Lys Pro Val Ala Ser Pro Ser Ala Thr Thr Val Gly Thr Gln Thr  
 785 790 795 800  
 Leu Pro His Ser Ser Ser Gly Phe Leu Asp Ser Ala Val Glu Leu Asp  
 805 810 815  
 His Arg Ile Asp Phe Glu Leu Arg Glu Gly Leu Val Glu Ser Arg Tyr  
 820 825 830  
 Trp Ser Ala Val Thr Ser His Thr Ala Tyr Trp Ser Ser Leu Asp Val  
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Glu Leu Cys Ile Ala Gly Met His His His Ser Trp Leu Ile Phe Cys	
15 20 25	
att ttt agt gcc atc gaa tcc ggc tca aac ctt tta ttt ctc tta tgt	146
Ile Phe Ser Ala Ile Glu Ser Gly Ser Asn Leu Leu Phe Leu Leu Cys	
30 35 40	
aaa agc tgt gta ctt cag aaa aac atg tac agt tat ccc tgg cag tgc	194
Lys Ser Cys Val Leu Gln Lys Asn Met Tyr Ser Tyr Pro Trp Gln Cys	
45 50 55 60	
cgg ggt ggg gtc tgc gcg gcc ctg gag gcc tgg ccg gcc ttg cag atc	242
Arg Gly Gly Val Cys Ala Ala Leu Glu Ala Trp Pro Ala Leu Gln Ile	
65 70 75	
gct gtg gag aat ggc ttc ggg ggt gtg cac agc cag gag aag gcc aag	290
Ala Val Glu Asn Gly Phe Gly Gly Val His Ser Gln Glu Lys Ala Lys	
80 85 90	
tgg ctg ggg ggt gca gtg gag gat tac ttc atg cgc aat gct gac ttg	338
Trp Leu Gly Gly Ala Val Glu Asp Tyr Phe Met Arg Asn Ala Asp Leu	
95 100 105	
gag cta gat gag gtg gaa gac ttc ctt gga gag ctg ttg acc aac gag	386
Glu Leu Asp Glu Val Glu Asp Phe Leu Gly Glu Leu Leu Thr Asn Glu	
110 115 120	
ttt gat aca gtt gtg gaa gac ggg agt ctg ccc cag gtg agc cag caa	434
Phe Asp Thr Val Val Glu Asp Gly Ser Leu Pro Gln Val Ser Gln Gln	
125 130 135 140	
ctg cag acc atg ttc cac cac ttc cag agg ggt gat ggg gct gct ctg	482
Leu Gln Thr Met Phe His His Phe Gln Arg Gly Asp Gly Ala Ala Leu	
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Arg Glu Met Ala Ser Cys Ile Thr Gln Arg Lys Cys Lys Val Thr Ala	
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Thr Ala Leu Lys Thr Ala Arg Glu Thr Asp Glu Asp Glu Asp Asp Val	
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 Asp Ser Val Glu Glu Met Glu Val Thr Ala Thr Asn Asp Gly Ala Ala  
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Gly Phe Gly Gly Val His Ser Gln Glu Lys Ala Lys Trp Leu Gly Gly  
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Ala Val Glu Asp Tyr Phe Met Arg Asn Ala Asp Leu Glu Leu Asp Glu  
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Val Glu Asp Phe Leu Gly Glu Leu Leu Thr Asn Glu Phe Asp Thr Val  
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Phe His His Phe Gln Arg Gly Asp Gly Ala Ala Leu Arg Glu Met Ala  
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Ser Cys Ile Thr Gln Arg Lys Cys Lys Val Thr Ala Thr Ala Leu Lys

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Met Val Ala Leu Ser Leu Lys Ile Cys Val Arg His Cys Asn			
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Val Val Lys Thr Met Gln Phe Glu Pro Ser Thr Ala Val Tyr Asp Ala			
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Cys Arg Val Ile Arg Glu Arg Val Pro Glu Ala Gln Thr Gly Gln Ala			
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Ser Asp Tyr Gly Leu Phe Leu Ser Asp Glu Asp Pro Arg Lys Gly Ile			
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Trp Leu Glu Ala Gly Arg Thr Leu Asp Tyr Tyr Met Leu Arg Asn Gly			
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gat att ttg gaa tat aaa aag aaa cag aga cct cag aaa atc cgg atg			339
Asp Ile Leu Glu Tyr Lys Lys Lys Gln Arg Pro Gln Lys Ile Arg Met			
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ctg gat gga tct gtg aag aca gtg atg gtg gat gat tcc aag act gtg			387
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Glu Tyr Ile Lys Gln Arg Gly Ala Glu Lys Arg Ile Phe Gln Glu His																				
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Ile Thr Lys Asp Ser Val Met Arg Val Asp Glu Lys Thr Lys Glu Val																				
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Arg	Leu	Arg	Glu	Ala	Ala	Glu	Gly	Leu	Arg	Val	Ala	Thr	Asn	Ala	Ala		
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Asp Pro Pro Thr Trp Ser Val Leu Ala Gly His Ser His Thr Val Ser	
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Asp Ser Ile Lys Ser Leu Ile Thr Ser Ile Arg Asp Lys Ala Pro Gly	
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Gln Arg Glu Cys Asp Tyr Ser Ile Asp Gly Ile Asn Arg Cys Ile Arg	
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gac atc gag cag gcc tcg ctg gcc gcc gtc agc cag agc ctg gcc acg	5139
Asp Ile Glu Gln Ala Ser Leu Ala Ala Val Ser Gln Ser Leu Ala Thr	
680 685 690	
agg gac gac atc tct gtg gag gcc ctg cag gag cag ctg act tcg gtg	5187
Arg Asp Asp Ile Ser Val Glu Ala Leu Gln Glu Gln Leu Thr Ser Val	
695 700 705 710	
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Val Gln Glu Ile Gly His Leu Ile Asp Pro Ile Ala Thr Ala Ala Arg	
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Gly Glu Ala Ala Gln Leu Gly His Lys Val Thr Gln Leu Ala Ser Tyr	
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Phe Glu Pro Leu Ile Leu Ala Ala Val Gly Val Ala Ser Lys Ile Leu	
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Asp His Gln Gln Gln Met Thr Val Leu Asp Gln Thr Lys Thr Leu Ala	
760 765 770	
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Glu Ser Ala Leu Gln Met Leu Tyr Ala Ala Lys Glu Gly Gly Gly Asn	
775 780 785 790	
ccc aag gca caa cac acc cat gac gcc atc aca gag gcc gcc cag ttg	5475
Pro Lys Ala Gln His Thr His Asp Ala Ile Thr Glu Ala Ala Gln Leu	
795 800 805	
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Met Lys Glu Ala Val Asp Asp Ile Met Val Thr Leu Asn Glu Ala Ala	
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agt gaa gtg ggg ctg gtt ggg ggc atg gtg gac gcc att gca gaa gcc	5571
Ser Glu Val Gly Leu Val Gly Gly Met Val Asp Ala Ile Ala Glu Ala	
825 830 835	
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Met Ser Lys Leu Asp Glu Gly Thr Pro Pro Glu Pro Lys Gly Thr Phe	
840 845 850	
gtc gac tat cag acg act gtg gtt aaa tac tcc aaa gcc att gcg gtg	5667
Val Asp Tyr Gln Thr Thr Val Val Lys Tyr Ser Lys Ala Ile Ala Val	
855 860 865 870	
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Thr Ala Gln Glu Met Met Thr Lys Ser Val Thr Asn Pro Glu Glu Leu	
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gga gga ctg gct tca caa atg acc agt gac tat ggg cac ctg gct ttc	5763
Gly Gly Leu Ala Ser Gln Met Thr Ser Asp Tyr Gly His Leu Ala Phe	
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Gln Gly Gln Met Ala Ala Ala Thr Ala Glu Pro Glu Glu Ile Gly Phe	
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Gln Ile Arg Thr Arg Val Gln Asp Leu Gly His Gly Cys Ile Phe Leu	
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Val Gln Lys Ala Gly Ala Leu Gln Val Cys Pro Thr Asp Ser Tyr Thr	

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Leu Val Leu Ser Ala Leu Gln Ala Gly Asn Lys Gly Thr Gln Ala Cys				
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Ile Thr Ala Ala Thr Ala Val Ser Gly Ile Ile Ala Asp Leu Asp Thr				
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Thr Ile Met Phe Ala Thr Ala Gly Thr Leu Asn Ala Glu Asn Ser Glu				
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acc ttc gca gac cac agg gag aac att ctc aag acg gcc aag gcc ttg				6147
Thr Phe Ala Asp His Arg Glu Asn Ile Leu Lys Thr Ala Lys Ala Leu				
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Val Glu Asp Thr Lys Leu Leu Val Ser Gly Ala Ala Ser Thr Pro Asp				
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Lys Leu Ala Gln Ala Ala Gln Ser Ser Ala Ala Thr Ile Thr Gln Leu				
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Ala Glu Val Val Lys Leu Gly Ala Ala Ser Leu Gly Ser Asp Asp Pro				
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Glu Thr Gln Val Asp Leu Ile Asn Ala Ile Lys Asp Val Ala Lys Ala				
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ctt tct gat ctc atc agt gct acc aag gga gct gcc agc aag cca gtg				6387
Leu Ser Asp Leu Ile Ser Ala Thr Lys Gly Ala Ala Ser Lys Pro Val				
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Asp Asp Pro Ser Met Tyr Gln Leu Lys Gly Ala Ala Lys Val Met Val				
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Thr Asn Val Thr Ser Leu Leu Lys Thr Val Lys Ala Val Glu Asp Glu				
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gcc acc cgg ggc acc agg gcg ctt gag gcc aca att gaa tgc ata aag				6531
Ala Thr Arg Gly Thr Arg Ala Leu Glu Ala Thr Ile Glu Cys Ile Lys				
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cag gag ctt acg gtg ttc cag tca aaa gac gta cct gaa aag aca tca				6579
Gln Glu Leu Thr Val Phe Gln Ser Lys Asp Val Pro Glu Lys Thr Ser				
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Ser Pro Glu Glu Ser Ile Arg Met Thr Lys Gly Ile Thr Met Ala Thr	
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Ala Lys Ala Val Ala Ala Gly Asn Ser Cys Arg Gln Glu Asp Val Ile	
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gct act gcc aac ctg agc cgg aaa gcc gtg tca gat atg ttg acg gct	6723
Ala Thr Ala Asn Leu Ser Arg Lys Ala Val Ser Asp Met Leu Thr Ala	
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tgc aag caa gca tcc ttc cac ccc gat gtc agt gac gag gtg aga acc	6771
Cys Lys Gln Ala Ser Phe His Pro Asp Val Ser Asp Glu Val Arg Thr	
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Arg Ala Leu Arg Phe Gly Thr Glu Cys Thr Leu Gly Tyr Leu Asp Leu	
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ctg gag cac gtc ttg gtg att ctt cag aaa cca acc cca gaa ttc aag	6867
Leu Glu His Val Leu Val Ile Leu Gln Lys Pro Thr Pro Glu Phe Lys	
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Gln Gln Leu Ala Ala Phe Ser Lys Arg Val Ala Gly Ala Val Thr Glu	
275 280 285	
ctc atc cag gcg gcg gaa gcc atg aaa gga aca gag tgg gtg gat cca	6963
Leu Ile Gln Ala Ala Glu Ala Met Lys Gly Thr Glu Trp Val Asp Pro	
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Glu Asp Pro Thr Val Ile Ala Glu Thr Glu Leu Leu Gly Ala Ala Ala	
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Ser Ile Glu Ala Ala Ala Lys Lys Leu Glu Gln Leu Lys Pro Arg Ala	
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Lys Pro Lys Gln Ala Asp Glu Thr Leu Asp Phe Glu Glu Gln Ile Leu	
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Glu Ala Ala Lys Ser Ile Ala Ala Thr Ser Ala Leu Val Lys Ser	
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gcc tca gca gcc cag agg gag ctg gtg gcc caa gga aag gtg ggc tcc	7203
Ala Ser Ala Ala Gln Arg Glu Leu Val Ala Gln Gly Lys Val Gly Ser	
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Ile Pro Ala Asn Ala Ala Asp Asp Gly Gln Trp Ser Gln Gly Leu Ile	
385 390 395	

tct gct gcc cgg atg gtg gcg gct gcg acc agc agt ctc tgt gag gcg	7299
Ser Ala Ala Arg Met Val Ala Ala Ala Thr Ser Ser Leu Cys Glu Ala	
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gcc aat gcc tcc gtt cag gga cac gcc agc gag gag aag ctc atc tca	7347
Ala Asn Ala Ser Val Gln Gly His Ala Ser Glu Glu Lys Leu Ile Ser	
415 420 425 430	
tct gcc aag cag gtc gcc gct tcc acg gct cag ctg ctg gtg gcc tgc	7395
Ser Ala Lys Gln Val Ala Ala Ser Thr Ala Gln Leu Leu Val Ala Cys	
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Lys Val Lys Ala Asp Gln Asp Ser Glu Ala Met Arg Arg Leu Gln Ala	
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Ala Gly Asn Ala Val Lys Arg Ala Ser Asp Asn Leu Val Arg Ala Ala	
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Gln Lys Ala Ala Phe Gly Lys Ala Asp Asp Asp Val Val Val Glu	
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acc aag ttt gtg ggg ggc att gct cag atc atc gcc gcc cag gaa gaa	7587
Thr Lys Phe Val Gly Gly Ile Ala Gln Ile Ile Ala Ala Gln Glu Glu	
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Met Leu Lys Lys Glu Arg Glu Leu Glu Glu Ala Arg Lys Lys Leu Ala	
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Gln Ile Arg Gln Gln Gln Tyr Lys Phe Leu Pro Thr Glu Leu Arg Glu	
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Asp Glu Gly	
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<211>2545

<212>PRT

<213> Homo sapiens

<400>76

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Val Ile Arg Glu Arg Val Pro Glu Ala Gln Thr Gly Gln Ala Ser Asp

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Tyr Gly Leu Phe Leu Ser Asp Glu Asp Pro Arg Lys Gly Ile Trp Leu		
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Glu Ala Gly Arg Thr Leu Asp Tyr Tyr Met Leu Arg Asn Gly Asp Ile		
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Leu Glu Tyr Lys Lys Lys Gln Arg Pro Gln Lys Ile Arg Met Leu Asp		
	85	90
Gly Ser Val Lys Thr Val Met Val Asp Asp Ser Lys Thr Val Gly Glu		
	100	105
Leu Leu Val Thr Ile Cys Ser Arg Ile Gly Ile Thr Asn Tyr Glu Glu		
	115	120
Tyr Ser Leu Ile Gln Glu Thr Ile Glu Glu Lys Lys Glu Glu Gly Thr		
	130	135
Gly Thr Leu Lys Lys Asp Arg Thr Leu Leu Arg Asp Glu Arg Lys Met		
	145	150
Glu Lys Leu Lys Ala Lys Leu His Thr Asp Asp Asp Leu Asn Trp Leu		
	165	170
Asp His Ser Arg Thr Phe Arg Glu Gln Gly Val Asp Glu Asn Glu Thr		
	180	185
Leu Leu Leu Arg Arg Lys Phe Phe Tyr Ser Asp Gln Asn Val Asp Ser		
	195	200
Arg Asp Pro Val Gln Leu Asn Leu Leu Tyr Val Gln Ala Arg Asp Asp		
	210	215
Ile Leu Asn Gly Ser His Pro Val Ser Phe Glu Lys Ala Cys Glu Phe		
	225	230
Gly Gly Phe Gln Ala Gln Ile Gln Phe Gly Pro His Val Glu His Lys		
	245	250
His Lys Pro Gly Phe Leu Asp Leu Lys Glu Phe Leu Pro Lys Glu Tyr		
	260	265
Ile Lys Gln Arg Gly Ala Glu Lys Arg Ile Phe Gln Glu His Lys Asn		
	275	280
Cys Gly Glu Met Ser Glu Ile Glu Ala Lys Val Lys Tyr Val Lys Leu		
	290	295
Ala Arg Ser Leu Arg Thr Tyr Gly Val Ser Phe Phe Leu Val Lys Glu		
	305	310
Lys Met Lys Gly Lys Asn Lys Leu Val Pro Arg Leu Leu Gly Ile Thr		
	325	330
Lys Asp Ser Val Met Arg Val Asp Glu Lys Thr Lys Glu Val Leu Gln		



340										345										350																																			
Glu	Trp	Pro	Leu	Thr	Thr	Val	Lys	Arg	Trp	Ala	Ala	Ser	Pro	Lys	Ser																																								
		355						360					365																																										
Phe	Thr	Leu	Asp	Phe	Gly	Glu	Tyr	Gln	Glu	Ser	Tyr	Tyr	Ser	Val	Gln																																								
		370				375					380																																												
Thr	Thr	Glu	Gly	Glu	Gln	Ile	Ser	Gln	Leu	Ile	Ala	Gly	Tyr	Ile	Asp																																								
		385			390					395					400																																								
Ile	Ile	Leu	Lys	Lys	Gly	Thr	Tyr	Val	Thr	Ser	Val	Gly	Ser	Pro	His																																								
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Cys	Thr	Pro	His	Gly	Trp	Cys	Ser	Leu	Ser	Asp	Gln	Thr	Thr	Phe	Pro																																								
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Gly	Arg	Ser	Thr	Ile	Leu	Gln	Gln	Gln	Phe	Asn	Arg	Thr	Gly	Lys	Ala																																								
		435				440						445																																											
Glu	His	Gly	Ser	Val	Ala	Leu	Pro	Ala	Val	Met	Arg	Ser	Gly	Ser	Ser																																								
		450				455				460																																													
Gly	Pro	Glu	Thr	Phe	Asn	Val	Gly	Ser	Met	Pro	Ser	Pro	Gln	Gln	Gln																																								
		465			470				475					480																																									
Val	Met	Val	Gly	Gln	Met	His	Arg	Gly	His	Met	Pro	Pro	Leu	Thr	Ser																																								
				485				490					495																																										
Ala	Gln	Gln	Ala	Leu	Met	Gly	Thr	Ile	Asn	Thr	Ser	Met	His	Ala	Val																																								
			500					505					510																																										
Gln	Gln	Ala	Gln	Asp	Asp	Leu	Ser	Glu	Leu	Asp	Ser	Leu	Pro	Pro	Leu																																								
		515				520						525																																											
Gly	Gln	Asp	Met	Ala	Ser	Arg	Val	Trp	Val	Gln	Asn	Lys	Val	Asp	Glu																																								
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Ser	Lys	His	Glu	Ile	His	Ser	Gln	Val	Asp	Ala	Ile	Thr	Ala	Gly	Thr																																								
		545			550				555				560																																										
Ala	Ser	Val	Val	Asn	Leu	Thr	Ala	Gly	Asp	Pro	Ala	Asp	Thr	Asp	Tyr																																								
			565					570				575																																											
Thr	Ala	Val	Gly	Cys	Ala	Ile	Thr	Thr	Ile	Ser	Ser	Asn	Leu	Thr	Glu																																								
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Met	Ser	Lys	Gly	Val	Lys	Leu	Leu	Ala	Ala	Leu	Met	Asp	Asp	Glu	Val																																								
		595				600					605																																												
Gly	Ser	Gly	Glu	Asp	Leu	Leu	Arg	Ala	Ala	Arg	Thr	Leu	Ala	Gly	Ala																																								
		610				615					620																																												
Val	Ser	Asp	Leu	Leu	Lys	Ala	Val	Gln	Pro	Thr	Ser	Gly	Glu	Pro	Arg																																								
		625			630				635				640																																										
Gln	Thr	Val	Leu	Thr	Ala	Ala	Gly	Ser	Ile	Gly	Gln	Ala	Ser	Gly	Asp																																								

[illegible]

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Cys Lys Ala Val Ala Asp His Ile Pro Gln Leu Val Gln Gly Val Arg			
	965	970	975
Gly Ser Gln Ala Gln Ala Glu Asp Leu Ser Ala Gln Leu Ala Leu Ile			
	980	985	990
Ile Ser Ser Gln Asn Phe Leu Gln Pro Gly Ser Lys Met Val Ser Ser			
	995	000	005
Ala Lys Ala Ala Val Pro Thr Val Ser Asp Gln Ala Ala Ala Met Gln			
	010	015	020
Leu Ser Gln Cys Ala Lys Asn Leu Ala Thr Ser Leu Ala Glu Leu Arg			
	025	030	035
Thr Ala Ser Gln Lys Ala His Glu Ala Cys Gly Pro Met Glu Ile Asp			
	045	050	055
Ser Ala Leu Asn Thr Val Gln Thr Leu Lys Asn Glu Leu Gln Asp Ala			
	060	065	070
Lys Met Ala Ala Val Glu Ser Gln Leu Lys Pro Leu Pro Gly Glu Thr			
	075	080	085
Leu Glu Lys Cys Ala Gln Asp Leu Gly Ser Thr Ser Lys Ala Val Gly			
	090	095	100
Ser Ser Met Ala Gln Leu Leu Thr Cys Ala Ala Gln Gly Asn Glu His			
	105	110	115
Tyr Thr Gly Val Ala Ala Arg Glu Thr Ala Gln Ala Leu Lys Thr Leu			
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Ala Gln Ala Ala Arg Gly Val Ala Ala Ser Thr Thr Asp Pro Ala Ala			
	140	145	150
Ala His Ala Met Leu Asp Ser Ala Arg Asp Val Met Glu Gly Ser Ala			
	155	160	165
Met Leu Ile Gln Glu Ala Lys Gln Ala Leu Ile Ala Pro Gly Asp Ala			
	170	175	180
Glu Arg Gln Gln Arg Leu Ala Gln Val Ala Lys Ala Val Ser His Ser			
	185	190	195
Leu Asn Asn Cys Val Asn Cys Leu Pro Gly Gln Lys Asp Val Asp Val			
	205	210	215
Ala Leu Lys Ser Ile Gly Glu Ser Ser Lys Lys Leu Leu Val Asp Ser			
	220	225	230
Leu Pro Pro Ser Thr Lys Pro Phe Gln Glu Ala Gln Ser Glu Leu Asn			
	235	240	245
Gln Ala Ala Ala Asp Leu Asn Gln Ser Ala Gly Glu Val Val His Ala			

250	255	260
Thr Arg Gly Gln Ser Gly Glu Leu Ala Ala Ala Ser Gly Lys Phe Ser 265 270 275 280		
Asp Asp Phe Gly Glu Phe Leu Asp Ala Gly Ile Glu Met Ala Gly Gln 285 290 295		
Ala Gln Thr Lys Glu Asp Gln Ile Gln Val Ile Gly Asn Leu Lys Asn 300 305 310		
Ile Ser Met Ala Ser Ser Lys Leu Leu Leu Ala Ala Lys Ser Leu Ser 315 320 325		
Val Asp Pro Gly Ala Pro Asn Ala Lys Asn Leu Leu Ala Ala Ala Ala 330 335 340		
Arg Ala Val Thr Glu Ser Ile Asn Gln Leu Ile Thr Leu Cys Thr Gln 345 350 355 360		
Gln Ala Pro Gly Gln Lys Glu Cys Asp Asn Ala Leu Arg Glu Leu Glu 365 370 375		
Thr Val Lys Gly Met Leu Asp Asn Pro Asn Glu Pro Val Ser Asp Leu 380 385 390		
Ser Tyr Phe Asp Cys Ile Glu Ser Val Met Glu Asn Ser Lys Val Leu 395 400 405		
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Pro Ala Phe Gly Glu Cys Val Gly Ile Ala Ser Lys Ala Leu Cys Gly 425 430 435 440		
Leu Thr Glu Ala Ala Ala Gln Ala Ala Tyr Leu Val Gly Ile Ser Asp 445 450 455		
Pro Asn Ser Gln Ala Gly His Gln Gly Leu Val Asp Pro Ile Gln Phe 460 465 470		
Ala Arg Ala Asn Gln Ala Ile Gln Met Ala Cys Gln Asn Leu Val Asp 475 480 485		
Pro Gly Ser Ser Pro Ser Gln Val Leu Ser Ala Ala Thr Ile Val Ala 490 495 500		
Lys His Thr Ser Ala Leu Cys Asn Ala Cys Arg Ile Ala Ser Ser Lys 505 510 515 520		
Thr Ala Asn Pro Val Ala Lys Arg His Phe Val Gln Ser Ala Lys Glu 525 530 535		
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Gly Asp Phe Ser Glu Asp Asn Arg Asn Lys Cys Arg Ile Ala Thr Ala		

555	560	565
Pro Leu Ile Glu Ala Val	Glu Asn Leu Thr Ala	Phe Ala Ser Asn Pro
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Glu Phe Val Ser Ile Pro	Ala Gln Ile Ser Ser	Glu Gly Ser Gln Ala
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Gln Glu Pro Ile Leu Val	Ser Ala Lys Thr Met	Leu Glu Ser Ser Ser
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Tyr Leu Ile Arg Thr Ala	Arg Ser Leu Ala Ile	Asn Pro Lys Asp Pro
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Pro Thr Trp Ser Val Leu	Ala Gly His Ser His	Thr Val Ser Asp Ser
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Ile Lys Ser Leu Ile Thr	Ser Ile Arg Asp Lys	Ala Pro Gly Gln Arg
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Glu Cys Asp Tyr Ser Ile	Asp Gly Ile Asn Arg	Cys Ile Arg Asp Ile
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Glu Gln Ala Ser Leu Ala	Ala Val Ser Gln Ser	Leu Ala Thr Arg Asp
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Asp Ile Ser Val Glu Ala	Leu Gln Glu Gln Leu	Thr Ser Val Val Gln
700	705	710
Glu Ile Gly His Leu Ile	Asp Pro Ile Ala Thr	Ala Ala Arg Gly Glu
715	720	725
Ala Ala Gln Leu Gly His	Lys Val Thr Gln Leu	Ala Ser Tyr Phe Glu
730	735	740
Pro Leu Ile Leu Ala Ala	Val Gly Val Ala Ser	Lys Ile Leu Asp His
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Gln Gln Gln Met Thr Val	Leu Asp Gln Thr Lys	Thr Leu Ala Glu Ser
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Ala Leu Gln Met Leu Tyr	Ala Ala Lys Glu Gly	Gly Gly Asn Pro Lys
780	785	790
Ala Gln His Thr His Asp	Ala Ile Thr Glu Ala	Ala Gln Leu Met Lys
795	800	805
Glu Ala Val Asp Asp Ile	Met Val Thr Leu Asn	Glu Ala Ala Ser Glu
810	815	820
Val Gly Leu Val Gly Gly	Met Val Asp Ala Ile	Ala Glu Ala Met Ser
825	830	835 840
Lys Leu Asp Glu Gly Thr	Pro Pro Glu Pro Lys	Gly Thr Phe Val Asp
845	850	855
Tyr Gln Thr Thr Val Val	Lys Tyr Ser Lys Ala	Ile Ala Val Thr Ala

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Gln	Glu	Met	Met	Thr	Lys	Ser	Val	Thr	Asn	Pro	Glu	Glu	Leu	Gly	Gly
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Leu	Ala	Ser	Gln	Met	Thr	Ser	Asp	Tyr	Gly	His	Leu	Ala	Phe	Gln	Gly
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Ala	Gln	Ala	Ala	Gln	Ser	Ser	Ala	Ala	Thr	Ile	Thr	Gln	Leu	Ala	Glu
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Val	Val	Lys	Leu	Gly	Ala	Ala	Ser	Leu	Gly	Ser	Asp	Asp	Pro	Glu	Thr
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Gln	Val	Asp	Leu	Ile	Asn	Ala	Ile	Lys	Asp	Val	Ala	Lys	Ala	Leu	Ser
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Asp	Leu	Ile	Ser	Ala	Thr	Lys	Gly	Ala	Ala	Ser	Lys	Pro	Val	Asp	Asp
				100					105					110	
Pro	Ser	Met	Tyr	Gln	Leu	Lys	Gly	Ala	Ala	Lys	Val	Met	Val	Thr	Asn
				115					120					125	
Val	Thr	Ser	Leu	Leu	Lys	Thr	Val	Lys	Ala	Val	Glu	Asp	Glu	Ala	Thr
				130					135					140	
Arg	Gly	Thr	Arg	Ala	Leu	Glu	Ala	Thr	Ile	Glu	Cys	Ile	Lys	Gln	Glu
				145					150					155	
Leu	Thr	Val	Phe	Gln	Ser	Lys	Asp	Val	Pro	Glu	Lys	Thr	Ser	Ser	Pro

165										170					175				
Glu	Glu	Ser	Ile	Arg	Met	Thr	Lys	Gly	Ile	Thr	Met	Ala	Thr	Ala	Lys				
			180					185						190					
Ala	Val	Ala	Ala	Gly	Asn	Ser	Cys	Arg	Gln	Glu	Asp	Val	Ile	Ala	Thr				
		195					200					205							
Ala	Asn	Leu	Ser	Arg	Lys	Ala	Val	Ser	Asp	Met	Leu	Thr	Ala	Cys	Lys				
	210					215					220								
Gln	Ala	Ser	Phe	His	Pro	Asp	Val	Ser	Asp	Glu	Val	Arg	Thr	Arg	Ala				
225					230					235					240				
Leu	Arg	Phe	Gly	Thr	Glu	Cys	Thr	Leu	Gly	Tyr	Leu	Asp	Leu	Leu	Glu				
			245						250					255					
His	Val	Leu	Val	Ile	Leu	Gln	Lys	Pro	Thr	Pro	Glu	Phe	Lys	Gln	Gln				
		260						265					270						
Leu	Ala	Ala	Phe	Ser	Lys	Arg	Val	Ala	Gly	Ala	Val	Thr	Glu	Leu	Ile				
		275					280						285						
Gln	Ala	Ala	Glu	Ala	Met	Lys	Gly	Thr	Glu	Trp	Val	Asp	Pro	Glu	Asp				
	290					295					300								
Pro	Thr	Val	Ile	Ala	Glu	Thr	Glu	Leu	Leu	Gly	Ala	Ala	Ala	Ser	Ile				
305					310					315				320					
Glu	Ala	Ala	Ala	Lys	Lys	Leu	Glu	Gln	Leu	Lys	Pro	Arg	Ala	Lys	Pro				
				325					330					335					
Lys	Gln	Ala	Asp	Glu	Thr	Leu	Asp	Phe	Glu	Glu	Gln	Ile	Leu	Glu	Ala				
			340					345					350						
Ala	Lys	Ser	Ile	Ala	Ala	Ala	Thr	Ser	Ala	Leu	Val	Lys	Ser	Ala	Ser				
		355					360					365							
Ala	Ala	Gln	Arg	Glu	Leu	Val	Ala	Gln	Gly	Lys	Val	Gly	Ser	Ile	Pro				
		370				375						380							
Ala	Asn	Ala	Ala	Asp	Asp	Gly	Gln	Trp	Ser	Gln	Gly	Leu	Ile	Ser	Ala				
385					390					395					400				
Ala	Arg	Met	Val	Ala	Ala	Ala	Thr	Ser	Ser	Leu	Cys	Glu	Ala	Ala	Asn				
			405						410					415					
Ala	Ser	Val	Gln	Gly	His	Ala	Ser	Glu	Glu	Lys	Leu	Ile	Ser	Ser	Ala				
		420						425					430						
Lys	Gln	Val	Ala	Ala	Ser	Thr	Ala	Gln	Leu	Leu	Val	Ala	Cys	Lys	Val				
		435					440					445							
Lys	Ala	Asp	Gln	Asp	Ser	Glu	Ala	Met	Arg	Arg	Leu	Gln	Ala	Ala	Gly				
	450					455					460								
Asn	Ala	Val	Lys	Arg	Ala	Ser	Asp	Asn	Leu	Val	Arg	Ala	Ala	Gln	Lys				

465	470	475	480
Ala Ala Phe Gly Lys Ala Asp Asp Asp Asp Val Val Val Glu Thr Lys			
	485	490	495
Phe Val Gly Gly Ile Ala Gln Ile Ile Ala Ala Gln Glu Glu Met Leu			
	500	505	510
Lys Lys Glu Arg Glu Leu Glu Glu Ala Arg Lys Lys Leu Ala Gln Ile			
	515	520	525
Arg Gln Gln Gln Tyr Lys Phe Leu Pro Thr Glu Leu Arg Glu Asp Glu			
	530	535	540
Gly			
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	Met Ala Gln Thr Leu Gln Met		
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Glu Ile Pro Asn Phe Gly Asn Ser Ile Leu Glu Cys Leu Asn Glu Gln			
	10	15	20
cgg ctg cag ggc ctg tac tgt gac gtg tca gtg gtg gtc aag ggc cat			148
Arg Leu Gln Gly Leu Tyr Cys Asp Val Ser Val Val Val Lys Gly His			
	25	30	35
gcc ttc aag gcc cac cgg gcc gtg ctt gct gcc agc agc tcc tac ttc			196
Ala Phe Lys Ala His Arg Ala Val Leu Ala Ala Ser Ser Ser Tyr Phe			
	40	45	50
cgg gac ctg ttc aac aac agc cgc agc gcc gtg gtg gag ctg ccg gcg			244
Arg Asp Leu Phe Asn Asn Ser Arg Ser Ala Val Val Glu Leu Pro Ala			
	60	65	70
gct gtg cag ccc cag tct ttc cag cag atc ctc agc ttc tgc tac acg			292
Ala Val Gln Pro Gln Ser Phe Gln Gln Ile Leu Ser Phe Cys Tyr Thr			
	75	80	85
ggc cgg ctg agc atg aac gtg ggc gac cag ttc ctg ctc atg tac acg			340
Gly Arg Leu Ser Met Asn Val Gly Asp Gln Phe Leu Leu Met Tyr Thr			
	90	95	100
gct ggc ttc ctg cag atc cag gag atc atg gag aag ggc acc gag ttc			388
Ala Gly Phe Leu Gln Ile Gln Glu Ile Met Glu Lys Gly Thr Glu Phe			
	105	110	115



ttc ctc aag gtg agc tcc ccg agc tgc gac tcc cag ggc ctg cat gcg	436
Phe Leu Lys Val Ser Ser Pro Ser Cys Asp Ser Gln Gly Leu His Ala	
120 125 130 135	
gag gag gcc cca tgc tgc gag ccc cag agc ccc gtg gcg cag aca tgc	484
Glu Glu Ala Pro Ser Ser Glu Pro Gln Ser Pro Val Ala Gln Thr Ser	
140 145 150	
ggc tgg cca gcc tgt agc acc ccg ctg ccc ctc gtg tgc cgg gtg aag	532
Gly Trp Pro Ala Cys Ser Thr Pro Leu Pro Leu Val Ser Arg Val Lys	
155 160 165	
acg gag cag cag gag tgc gac tcc gtg cag tgc atg ccc gtg gcc aag	580
Thr Glu Gln Gln Glu Ser Asp Ser Val Gln Cys Met Pro Val Ala Lys	
170 175 180	
cgg ctg tgg gac agt ggc cag aag gag gct ggg ggc ggc ggc aat ggc	628
Arg Leu Trp Asp Ser Gly Gln Lys Glu Ala Gly Gly Gly Gly Asn Gly	
185 190 195	
agc cgc aag atg gcc aag ttc tcc acg ccg gac ctg gct gcc aac cgg	676
Ser Arg Lys Met Ala Lys Phe Ser Thr Pro Asp Leu Ala Ala Asn Arg	
200 205 210 215	
cct cac cag ccc ccg cca ccc caa cag gct ccg gtg gtg gca gca gcc	724
Pro His Gln Pro Pro Pro Pro Gln Gln Ala Pro Val Val Ala Ala Ala	
220 225 230	
cag ccc gcc gtg gct gcg gga gca ggg cag cca gcc ggt ggg gtg gca	772
Gln Pro Ala Val Ala Ala Gly Ala Gly Gln Pro Ala Gly Gly Val Ala	
235 240 245	
gca gca ggg ggt gtg gtg agt ggg ccc agc acg tgc gag cgg acc agc	820
Ala Ala Gly Gly Val Val Ser Gly Pro Ser Thr Ser Glu Arg Thr Ser	
250 255 260	
cca ggc acc tca agc gcc tac acc agc gac agc cct ggc tcc tac cac	868
Pro Gly Thr Ser Ser Ala Tyr Thr Ser Asp Ser Pro Gly Ser Tyr His	
265 270 275	
aat gag gag gac gag gag gag gat ggt ggc gag gag ggc atg gat gag	916
Asn Glu Glu Asp Glu Glu Glu Asp Gly Gly Glu Glu Gly Met Asp Glu	
280 285 290 295	
cag tac cgg cag atc tgc aac atg tac acc atg tac agc atg atg aac	964
Gln Tyr Arg Gln Ile Cys Asn Met Tyr Thr Met Tyr Ser Met Met Asn	
300 305 310	
gtc ggc cag aca gcc gag aag gtg gag gcc ctc ccg gag cag gta gcc	1012
Val Gly Gln Thr Ala Glu Lys Val Glu Ala Leu Pro Glu Gln Val Ala	
315 320 325	
ccc gag tcc cga aat cgc atc ccg gtt ccg caa gac ctg gcg tct ctc	1060
Pro Glu Ser Arg Asn Arg Ile Arg Val Arg Gln Asp Leu Ala Ser Leu	
330 335 340	

ccg gct gaa ctt atc aac cag att ggg aac cgc tgc cac ccc aag ctc Pro Ala Glu Leu Ile Asn Gln Ile Gly Asn Arg Cys His Pro Lys Leu 345 350 355	1108
tac gac gag ggc gac ccc tct gag aag ctg gag ctg gtg aca ggc acc Tyr Asp Glu Gly Asp Pro Ser Glu Lys Leu Glu Leu Val Thr Gly Thr 360 365 370 375	1156
aac gtg tac atc aca agg gcg cag ctg atg aac tgc cac gtc agc gca Asn Val Tyr Ile Thr Arg Ala Gln Leu Met Asn Cys His Val Ser Ala 380 385 390	1204
ggc acg cgg cac aag gtc cta ctg cgg cgg ctc ctg gcc tcc ttc ttt Gly Thr Arg His Lys Val Leu Leu Arg Arg Leu Leu Ala Ser Phe Phe 395 400 405	1252
gac cgg aac acg ctg gcc aac agc tgc ggc acc ggc atc cgc tct tct Asp Arg Asn Thr Leu Ala Asn Ser Cys Gly Thr Gly Ile Arg Ser Ser 410 415 420	1300
acc aac gat ccc cgt cgg aag ccc ctg gac agc cgc gtg ctc cac gct Thr Asn Asp Pro Arg Arg Lys Pro Leu Asp Ser Arg Val Leu His Ala 425 430 435	1348
gtc aag tac tac tgc cag aac ttc gcc ccc aac ttc aag gag agc gag Val Lys Tyr Tyr Cys Gln Asn Phe Ala Pro Asn Phe Lys Glu Ser Glu 440 445 450 455	1396
atg aat gcc atc gcg gcc gac atg tgc acc aac gcc cgc cgc gtc gtg Met Asn Ala Ile Ala Ala Asp Met Cys Thr Asn Ala Arg Arg Val Val 460 465 470	1444
cgc aag agc tgg atg ccc aag gtc aag gtg ctc aag gct gag gat gac Arg Lys Ser Trp Met Pro Lys Val Lys Val Leu Lys Ala Glu Asp Asp 475 480 485	1492
gcc tac acc acc ttc atc agt gaa acg ggc aag atc gag ccg gac atg Ala Tyr Thr Thr Phe Ile Ser Glu Thr Gly Lys Ile Glu Pro Asp Met 490 495 500	1540
atg ggt gtg gag cat ggc ttc gag acc gcc agc cac gag ggc gag gcg Met Gly Val Glu His Gly Phe Glu Thr Ala Ser His Glu Gly Glu Ala 505 510 515	1588
ggg ccc atc gct gaa gcc ctg cag taacccgccc agcctcccg Gly Pro Ile Ala Glu Ala Leu Gln 520 525	1632
ggggccgcac acttcccctc ccaacacaca cacacacctg ccattcttggt	1682
catgagctac tgtctgtccc tcccaggac ccgcgggtggg tgctgcatgt	1732
tcccgccct ctgccctcc tgtcctaccc ctttcccca ccgagagctg	1782

ggccgggaga ggaccgcagg gcaggtggcg tgaggtccgt gttgccttct 1832

ttaacacaca ctctgtcagt gggggagttc tggctcccca acctaacccc 1882

tagccgtcat ctccacactc accaggccca ccaggggagg gggctggcct 1932

gggggtcttg ggaaggcccc tccccaggcc ttaggccacc tcgcggaagc 1982

cttcagcctc cgtccctcac tgcagcccct tgggacttga ggggggcccc 2032

aggggttctc aggaccctc ccaccacctc ccagtgttc cacgtctcca 2082

aaagcgctt cctgtcacc tcgtctatcc ctgcgcctgg gggctggggt 2132

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<210>78

<211>527

<212>PRT

<213> Homo sapiens

<400>78

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Leu	Glu	Cys	Leu	Asn	Glu	Gln	Arg	Leu	Gln	Gly	Leu	Tyr	Cys	Asp	Val
			20					25					30		

Ser	Val	Val	Val	Lys	Gly	His	Ala	Phe	Lys	Ala	His	Arg	Ala	Val	Leu
			35				40					45			

Ala	Ala	Ser	Ser	Ser	Tyr	Phe	Arg	Asp	Leu	Phe	Asn	Asn	Ser	Arg	Ser
	50						55					60			

Ala Val Val Glu Leu Pro Ala Ala Val Gln Pro Gln Ser Phe Gln Gln  
 65 70 75 80  
 Ile Leu Ser Phe Cys Tyr Thr Gly Arg Leu Ser Met Asn Val Gly Asp  
 85 90 95  
 Gln Phe Leu Leu Met Tyr Thr Ala Gly Phe Leu Gln Ile Gln Glu Ile  
 100 105 110  
 Met Glu Lys Gly Thr Glu Phe Phe Leu Lys Val Ser Ser Pro Ser Cys  
 115 120 125  
 Asp Ser Gln Gly Leu His Ala Glu Glu Ala Pro Ser Ser Glu Pro Gln  
 130 135 140  
 Ser Pro Val Ala Gln Thr Ser Gly Trp Pro Ala Cys Ser Thr Pro Leu  
 145 150 155 160  
 Pro Leu Val Ser Arg Val Lys Thr Glu Gln Gln Glu Ser Asp Ser Val  
 165 170 175  
 Gln Cys Met Pro Val Ala Lys Arg Leu Trp Asp Ser Gly Gln Lys Glu  
 180 185 190  
 Ala Gly Gly Gly Gly Asn Gly Ser Arg Lys Met Ala Lys Phe Ser Thr  
 195 200 205  
 Pro Asp Leu Ala Ala Asn Arg Pro His Gln Pro Pro Pro Pro Gln Gln  
 210 215 220  
 Ala Pro Val Val Ala Ala Ala Gln Pro Ala Val Ala Ala Gly Ala Gly  
 225 230 235 240  
 Gln Pro Ala Gly Gly Val Ala Ala Ala Gly Gly Val Val Ser Gly Pro  
 245 250 255  
 Ser Thr Ser Glu Arg Thr Ser Pro Gly Thr Ser Ser Ala Tyr Thr Ser  
 260 265 270  
 Asp Ser Pro Gly Ser Tyr His Asn Glu Glu Asp Glu Glu Glu Asp Gly  
 275 280 285  
 Gly Glu Glu Gly Met Asp Glu Gln Tyr Arg Gln Ile Cys Asn Met Tyr  
 290 295 300  
 Thr Met Tyr Ser Met Met Asn Val Gly Gln Thr Ala Glu Lys Val Glu  
 305 310 315 320  
 Ala Leu Pro Glu Gln Val Ala Pro Glu Ser Arg Asn Arg Ile Arg Val  
 325 330 335  
 Arg Gln Asp Leu Ala Ser Leu Pro Ala Glu Leu Ile Asn Gln Ile Gly  
 340 345 350  
 Asn Arg Cys His Pro Lys Leu Tyr Asp Glu Gly Asp Pro Ser Glu Lys  
 355 360 365

Leu Glu Leu Val Thr Gly Thr Asn Val Tyr Ile Thr Arg Ala Gln Leu  
 370 375 380

Met Asn Cys His Val Ser Ala Gly Thr Arg His Lys Val Leu Leu Arg  
 385 390 395 400

Arg Leu Leu Ala Ser Phe Phe Asp Arg Asn Thr Leu Ala Asn Ser Cys  
 405 410 415

Gly Thr Gly Ile Arg Ser Ser Thr Asn Asp Pro Arg Arg Lys Pro Leu  
 420 425 430

Asp Ser Arg Val Leu His Ala Val Lys Tyr Tyr Cys Gln Asn Phe Ala  
 435 440 445

Pro Asn Phe Lys Glu Ser Glu Met Asn Ala Ile Ala Ala Asp Met Cys  
 450 455 460

Thr Asn Ala Arg Arg Val Val Arg Lys Ser Trp Met Pro Lys Val Lys  
 465 470 475 480

Val Leu Lys Ala Glu Asp Asp Ala Tyr Thr Thr Phe Ile Ser Glu Thr  
 485 490 495

Gly Lys Ile Glu Pro Asp Met Met Gly Val Glu His Gly Phe Glu Thr  
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Ala Ser His Glu Gly Glu Ala Gly Pro Ile Ala Glu Ala Leu Gln  
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<211>1497

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(1)..(1468)

<400>79

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gta ggg gag aag ctg gag ctc gtc ctg tcg aac ctg cag gca gac gtc 96  
 Val Gly Glu Lys Leu Glu Leu Val Leu Ser Asn Leu Gln Ala Asp Val  
 20 25 30

ctg gag ttg ctg ctg gag ttt gtc tac acg ggc tcc ctg gtc atc gac 144  
 Leu Glu Leu Leu Leu Glu Phe Val Tyr Thr Gly Ser Leu Val Ile Asp  
 35 40 45

tcg gcc aac gcc aag aca ctg ctg gag gcg gcc agc aag ttc cag ttc 192  
 Ser Ala Asn Ala Lys Thr Leu Leu Glu Ala Ala Ser Lys Phe Gln Phe  
 50 55 60

cac acc ttc tgc aaa gtc tgc gtg tcc ttt ctc gag aag cag ctg acg 240  
 His Thr Phe Cys Lys Val Cys Val Ser Phe Leu Glu Lys Gln Leu Thr

65	70	75	80	
gcc agc aac tgc ctg ggc gtg ctg gcc atg gcc gag gcc atg cag tgc				288
Ala Ser Asn Cys Leu Gly Val Leu Ala Met Ala Glu Ala Met Gln Cys				
	85	90	95	
agc gag ctc tac cac atg gcc aag gcc ttc gcg ctg cag atc ttc ccc				336
Ser Glu Leu Tyr His Met Ala Lys Ala Phe Ala Leu Gln Ile Phe Pro				
	100	105	110	
gag gtg gcc gcc cag gag gag atc ctc agc atc tcc aag gac gac ttc				384
Glu Val Ala Ala Gln Glu Glu Ile Leu Ser Ile Ser Lys Asp Asp Phe				
	115	120	125	
atc gcc tac gtc tcc aac gac agc ctc aac acc aag gct gag gag ctg				432
Ile Ala Tyr Val Ser Asn Asp Ser Leu Asn Thr Lys Ala Glu Glu Leu				
	130	135	140	
gtg tac gag aca gtc atc aag tgg atc aag aag gac ccc gcg aca cgc				480
Val Tyr Glu Thr Val Ile Lys Trp Ile Lys Lys Asp Pro Ala Thr Arg				
	145	150	155	160
aca cag ctg cag tac gcg gct gag ctc ctg gcc gtg gtc cgc ctc ccc				528
Thr Gln Leu Gln Tyr Ala Ala Glu Leu Leu Ala Val Val Arg Leu Pro				
	165	170	175	
ttc atc cac ccc agc tac ctg ctc aat gtg gtt gac aat gaa gag ctg				576
Phe Ile His Pro Ser Tyr Leu Leu Asn Val Val Asp Asn Glu Glu Leu				
	180	185	190	
atc aag tca tca gaa gcc tgc cgg gac ctg gtg aac gag gcc aaa cgc				624
Ile Lys Ser Ser Glu Ala Cys Arg Asp Leu Val Asn Glu Ala Lys Arg				
	195	200	205	
tac cat atg ctg ccc cac gcc cgc cag gag atg cag acg ccc cga acc				672
Tyr His Met Leu Pro His Ala Arg Gln Glu Met Gln Thr Pro Arg Thr				
	210	215	220	
cgg ccg cgc gtc cct gca ggt gtg gct gag gtc atc gtc ttg gtt ggg				720
Arg Pro Arg Val Pro Ala Gly Val Ala Glu Val Ile Val Leu Val Gly				
	225	230	235	240
ggc cgt cag atg gtg ggg atg acc cag cgc tcg ctg gtg gcc gtc acc				768
Gly Arg Gln Met Val Gly Met Thr Gln Arg Ser Leu Val Ala Val Thr				
	245	250	255	
tgc tgg aac ccg cag aac aac aag tgg tac ccc ttg gcc tcg ctg ccc				816
Cys Trp Asn Pro Gln Asn Asn Lys Trp Tyr Pro Leu Ala Ser Leu Pro				
	260	265	270	
ttc tat gac cgc gag ttc ttc agt gta gtg agt gca ggg gac aac atc				864
Phe Tyr Asp Arg Glu Phe Phe Ser Val Val Ser Ala Gly Asp Asn Ile				
	275	280	285	
tac ctc tca ggt ggg atg gaa tca ggg gtg acg ctg gct gat gtc tgg				912
Tyr Leu Ser Gly Gly Met Glu Ser Gly Val Thr Leu Ala Asp Val Trp				
	290	295	300	

tgc tac atg tcc ctg ctt gat aac tgg aac ctc gtc tcc aga atg aca 960  
 Cys Tyr Met Ser Leu Leu Asp Asn Trp Asn Leu Val Ser Arg Met Thr  
 305 310 315 320  
  
 gtc ccc cgc tgt cgg cac aat agc ctc gtc tac gat ggg aag att tac 1008  
 Val Pro Arg Cys Arg His Asn Ser Leu Val Tyr Asp Gly Lys Ile Tyr  
 325 330 335  
  
 acc ctc ggg gga ctt ggc gtg gca ggc aac gtg gac cac gtg gag gtc 1056  
 Thr Leu Gly Gly Leu Gly Val Ala Gly Asn Val Asp His Val Glu Val  
 340 345 350  
  
 cct gca ggt gtg gct gag gtc atc gtc ttg gtt ggg ggc cgt cag atg 1104  
 Pro Ala Gly Val Ala Glu Val Ile Val Leu Val Gly Gly Arg Gln Met  
 355 360 365  
  
 gtg ggg atg acc cag cgc tcg ctg gtg gcc gtc acc tgc tgg aac ccg 1152  
 Val Gly Met Thr Gln Arg Ser Leu Val Ala Val Thr Cys Trp Asn Pro  
 370 375 380  
  
 cag aac aac aag tgg tac ccc ttg gcc tcg ctg ggt ggg atg gaa tca 1200  
 Gln Asn Asn Lys Trp Tyr Pro Leu Ala Ser Leu Gly Gly Met Glu Ser  
 385 390 395 400  
  
 ggg gtg acg ctg gct gat gtc tgg tgc tac atg tcc ctg ctt gat aac 1248  
 Gly Val Thr Leu Ala Asp Val Trp Cys Tyr Met Ser Leu Leu Asp Asn  
 405 410 415  
  
 tgg aac ctc gtc tcc aga atg aca gtc ccc cgc tgt cgg cac aat agc 1296  
 Trp Asn Leu Val Ser Arg Met Thr Val Pro Arg Cys Arg His Asn Ser  
 420 425 430  
  
 ctc gtc tac gat ggg aag att tac acc ctc ggg gga ctt ggc gtg gca 1344  
 Leu Val Tyr Asp Gly Lys Ile Tyr Thr Leu Gly Gly Leu Gly Val Ala  
 435 440 445  
  
 ggc aac gtg gac cac gtg gag gcc tac gag ccc aca acc aac aca tgg 1392  
 Gly Asn Val Asp His Val Glu Ala Tyr Glu Pro Thr Thr Asn Thr Trp  
 450 455 460  
  
 acc ctc ctc ccc cac atg ccc tgc cct gtg ttc aga cac ggc tgc gtc 1440  
 Thr Leu Leu Pro His Met Pro Cys Pro Val Phe Arg His Gly Cys Val  
 465 470 475 480  
  
 gtg ata aag aaa tat att caa agc ggc tgacatcagc agaaagccca 1487  
 Val Ile Lys Lys Tyr Ile Gln Ser Gly  
 485  
  
 cgataagact 1497

<210>80  
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 <212>PRT  
 <213> Homo sapiens

<400>80

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Val Gly Glu Lys Leu Glu Leu Val Leu Ser Asn Leu Gln Ala Asp Val  
20 25 30

Leu Glu Leu Leu Leu Glu Phe Val Tyr Thr Gly Ser Leu Val Ile Asp  
35 40 45

Ser Ala Asn Ala Lys Thr Leu Leu Glu Ala Ala Ser Lys Phe Gln Phe  
50 55 60

His Thr Phe Cys Lys Val Cys Val Ser Phe Leu Glu Lys Gln Leu Thr  
65 70 75 80

Ala Ser Asn Cys Leu Gly Val Leu Ala Met Ala Glu Ala Met Gln Cys  
85 90 95

Ser Glu Leu Tyr His Met Ala Lys Ala Phe Ala Leu Gln Ile Phe Pro  
100 105 110

Glu Val Ala Ala Gln Glu Glu Ile Leu Ser Ile Ser Lys Asp Asp Phe  
115 120 125

Ile Ala Tyr Val Ser Asn Asp Ser Leu Asn Thr Lys Ala Glu Glu Leu  
130 135 140

Val Tyr Glu Thr Val Ile Lys Trp Ile Lys Lys Asp Pro Ala Thr Arg  
145 150 155 160

Thr Gln Leu Gln Tyr Ala Ala Glu Leu Leu Ala Val Val Arg Leu Pro  
165 170 175

Phe Ile His Pro Ser Tyr Leu Leu Asn Val Val Asp Asn Glu Glu Leu  
180 185 190

Ile Lys Ser Ser Glu Ala Cys Arg Asp Leu Val Asn Glu Ala Lys Arg  
195 200 205

Tyr His Met Leu Pro His Ala Arg Gln Glu Met Gln Thr Pro Arg Thr  
210 215 220

Arg Pro Arg Val Pro Ala Gly Val Ala Glu Val Ile Val Leu Val Gly  
225 230 235 240

Gly Arg Gln Met Val Gly Met Thr Gln Arg Ser Leu Val Ala Val Thr  
245 250 255

Cys Trp Asn Pro Gln Asn Asn Lys Trp Tyr Pro Leu Ala Ser Leu Pro  
260 265 270

Phe Tyr Asp Arg Glu Phe Phe Ser Val Val Ser Ala Gly Asp Asn Ile  
275 280 285

Tyr Leu Ser Gly Gly Met Glu Ser Gly Val Thr Leu Ala Asp Val Trp



290		295		300
Cys Tyr Met Ser Leu Leu Asp Asn Trp Asn Leu Val Ser Arg Met Thr				
305		310		315 320
Val Pro Arg Cys Arg His Asn Ser Leu Val Tyr Asp Gly Lys Ile Tyr				
	325		330	335
Thr Leu Gly Gly Leu Gly Val Ala Gly Asn Val Asp His Val Glu Val				
	340		345	350
Pro Ala Gly Val Ala Glu Val Ile Val Leu Val Gly Gly Arg Gln Met				
	355		360	365
Val Gly Met Thr Gln Arg Ser Leu Val Ala Val Thr Cys Trp Asn Pro				
	370		375	380
Gln Asn Asn Lys Trp Tyr Pro Leu Ala Ser Leu Gly Gly Met Glu Ser				
385		390		395 400
Gly Val Thr Leu Ala Asp Val Trp Cys Tyr Met Ser Leu Leu Asp Asn				
	405		410	415
Trp Asn Leu Val Ser Arg Met Thr Val Pro Arg Cys Arg His Asn Ser				
	420		425	430
Leu Val Tyr Asp Gly Lys Ile Tyr Thr Leu Gly Gly Leu Gly Val Ala				
	435		440	445
Gly Asn Val Asp His Val Glu Ala Tyr Glu Pro Thr Thr Asn Thr Trp				
	450		455	460
Thr Leu Leu Pro His Met Pro Cys Pro Val Phe Arg His Gly Cys Val				
465		470		475 480
Val Ile Lys Lys Tyr Ile Gln Ser Gly				
	485			

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<211>4268

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(1)..(4258)

<400>81

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ctt cct acc ctt ggt ttc gct aat tgc atc ctc cag act tct ggt aaa	96
Leu Pro Thr Leu Gly Phe Ala Asn Cys Ile Leu Gln Thr Ser Gly Lys	
20 25 30	
atg tgt act tta aga ggt aga tac ccc cag ccc cca caa cca cct ctc	144
Met Cys Thr Leu Arg Gly Arg Tyr Pro Gln Pro Pro Gln Pro Pro Leu	

35	40	45	
tgc ttg tct ccc cta gtc cac cag ctc cga cca gca gac atc aaa gtg			192
Cys Leu Ser Pro Leu Val His Gln Leu Arg Pro Ala Asp Ile Lys Val			
50	55	60	
gtg gcc gcc ctg ggt aat gat gaa acc ttc cag gaa agt ggt gca ggg			240
Val Ala Ala Leu Gly Asn Asp Glu Thr Phe Gln Glu Ser Gly Ala Gly			
65	70	75	80
cag cta agt gag cct gac ccc agg cag tgg tcc tgg cca cag gcc tgc			288
Gln Leu Ser Glu Pro Asp Pro Arg Gln Trp Ser Trp Pro Gln Ala Cys			
85	90	95	
ttg cct ggg gta aaa aag gaa atg caa gat gtg gta ggt gag aga acg			336
Leu Pro Gly Val Lys Lys Glu Met Gln Asp Val Val Gly Glu Arg Thr			
100	105	110	
ccg agc cgt cgc cgc agc ctc cgc cgc cga gaa gcc ctt gtt ccc gct			384
Pro Ser Arg Arg Arg Ser Leu Arg Arg Arg Glu Ala Leu Val Pro Ala			
115	120	125	
gct ggg aag gag agt ctg tgc cga caa gat att ttc att tcc ttg ttg			432
Ala Gly Lys Glu Ser Leu Cys Arg Gln Asp Ile Phe Ile Ser Leu Leu			
130	135	140	
gaa att atc aag cat ttt cct ccc tcc cct cag gac atc aac ctg gag			480
Glu Ile Ile Lys His Phe Pro Pro Ser Pro Gln Asp Ile Asn Leu Glu			
145	150	155	160
aaa gac tgg aag ctg gtc aca ctc ttc att ggg gtc aac gac ttg tgt			528
Lys Asp Trp Lys Leu Val Thr Leu Phe Ile Gly Val Asn Asp Leu Cys			
165	170	175	
cat tac tgt cca ctt gtt cag ggc ccc gtt ata gac ctg ggt ggg atg			576
His Tyr Cys Pro Leu Val Gln Gly Pro Val Ile Asp Leu Gly Gly Met			
180	185	190	
gat acc ctc cac tcc ctg cag ctc cca agg gct ttc gtc aac gtg gtg			624
Asp Thr Leu His Ser Leu Gln Leu Pro Arg Ala Phe Val Asn Val Val			
195	200	205	
gag gtc atg gag ctg gct agc ctg tac cag ggc caa ggc ggg aaa tgt			672
Glu Val Met Glu Leu Ala Ser Leu Tyr Gln Gly Gln Gly Gly Lys Cys			
210	215	220	
gcc atg ctg gca gct cag gaa gcc tgg aac agc ctc ctg gcc tcc agc			720
Ala Met Leu Ala Ala Gln Glu Ala Trp Asn Ser Leu Leu Ala Ser Ser			
225	230	235	240
agg tac agt gag cag gag tcc ttc acc gtg gtt ttc cag cct ttc ttc			768
Arg Tyr Ser Glu Gln Glu Ser Phe Thr Val Val Phe Gln Pro Phe Phe			
245	250	255	
tat gag acc acc cca tct gac ccc cga ctc cag gat tct acc acg ctg			816
Tyr Glu Thr Thr Pro Ser Asp Pro Arg Leu Gln Asp Ser Thr Thr Leu			
260	265	270	

gcc tgg cat ctc tgg aat agg atg atg gag cca gca gga gag aaa gat	864
Ala Trp His Leu Trp Asn Arg Met Met Glu Pro Ala Gly Glu Lys Asp	
275 280 285	
gag cca ttg agt gta aaa cac ggg agg cca atg aag tgt ccc tct cag	912
Glu Pro Leu Ser Val Lys His Gly Arg Pro Met Lys Cys Pro Ser Gln	
290 295 300	
gag agc ccc tat ctg ttc agc tac aga aac agc aac tac ctg acc aga	960
Glu Ser Pro Tyr Leu Phe Ser Tyr Arg Asn Ser Asn Tyr Leu Thr Arg	
305 310 315 320	
ctg cag aaa ccc caa gac aag ctt gta aga gaa gga gcg gaa atc aga	1008
Leu Gln Lys Pro Gln Asp Lys Leu Val Arg Glu Gly Ala Glu Ile Arg	
325 330 335	
tgt cct gac aaa gac ccc tcc gat acg gtt ccc acc tca gtt cat agg	1056
Cys Pro Asp Lys Asp Pro Ser Asp Thr Val Pro Thr Ser Val His Arg	
340 345 350	
ctg aag ccg gct gac atc aac gta att gga gcc ctg ggt gac tct ctc	1104
Leu Lys Pro Ala Asp Ile Asn Val Ile Gly Ala Leu Gly Asp Ser Leu	
355 360 365	
acg gca ggc aat ggg gcc ggg tcc aca cct ggg aac gtc ttg gac gtc	1152
Thr Ala Gly Asn Gly Ala Gly Ser Thr Pro Gly Asn Val Leu Asp Val	
370 375 380	
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Leu Thr Gln Tyr Arg Gly Leu Ser Trp Ser Val Gly Gly Asp Glu Asn	
385 390 395 400	
atc ggc acc gtt acc acc ctg gca gac atc ctc cgg gaa ttc aac cct	1248
Ile Gly Thr Val Thr Thr Leu Ala Asp Ile Leu Arg Glu Phe Asn Pro	
405 410 415	
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Ser Leu Lys Gly Phe Ser Val Gly Thr Gly Lys Glu Thr Ser Pro Asn	
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gcc ttc tta aac cag gct gtg gca gga ggc cga gct gag cag gcc agg	1344
Ala Phe Leu Asn Gln Ala Val Ala Gly Gly Arg Ala Glu Gln Ala Arg	
435 440 445	
agg ctg gtg gac ctg atg aag aat gac acg agg ata cac ttt cag gaa	1392
Arg Leu Val Asp Leu Met Lys Asn Asp Thr Arg Ile His Phe Gln Glu	
450 455 460	
gac tgg aag ata ata acc ctg ttt ata ggc ggc aat gac ctc tgt gat	1440
Asp Trp Lys Ile Ile Thr Leu Phe Ile Gly Gly Asn Asp Leu Cys Asp	
465 470 475 480	
ttc tgc aat gat ctg gta cac tat tct ccc cag aac ttc aca gac aac	1488
Phe Cys Asn Asp Leu Val His Tyr Ser Pro Gln Asn Phe Thr Asp Asn	
485 490 495	

att gga aag gcc ctg gac atc ctc cat gct gag tct cag gtt cct cgg	1536
Ile Gly Lys Ala Leu Asp Ile Leu His Ala Glu Ser Gln Val Pro Arg	
500 505 510	
gca ttt gtg aac ctg gtg acg gtg ctt gag atc gtc aac ctg agg gag	1584
Ala Phe Val Asn Leu Val Thr Val Leu Glu Ile Val Asn Leu Arg Glu	
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ctg tac cag gag aaa aaa gtc tac tgc cca agg atg atc ctc agg tca	1632
Leu Tyr Gln Glu Lys Lys Val Tyr Cys Pro Arg Met Ile Leu Arg Ser	
530 535 540	
ctg tgt ccc tgt gtc ctg aag ttt gat gat aac tca aca gaa ctt gct	1680
Leu Cys Pro Cys Val Leu Lys Phe Asp Asp Asn Ser Thr Glu Leu Ala	
545 550 555 560	
acc ctc atc gaa ttc aac aag aag ttt cag gag aag acc cac caa ctg	1728
Thr Leu Ile Glu Phe Asn Lys Lys Phe Gln Glu Lys Thr His Gln Leu	
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Ile Glu Ser Gly Arg Tyr Asp Thr Arg Glu Asp Phe Thr Val Val Val	
580 585 590	
cag ccg ttc ttt gaa aac gtg gac atg cca aag acc cag gaa gga ttg	1824
Gln Pro Phe Phe Glu Asn Val Asp Met Pro Lys Thr Gln Glu Gly Leu	
595 600 605	
cct gac aac tct ttc ttc gct cct gac tgt ttc cac ttc agc agc aag	1872
Pro Asp Asn Ser Phe Phe Ala Pro Asp Cys Phe His Phe Ser Ser Lys	
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Ser His Ser Arg Ala Ala Ser Ala Leu Trp Asn Asn Met Leu Glu Pro	
625 630 635 640	
gtt ggc cag aag acg act cgt cat aag ttt gaa aac aag atc aat atc	1968
Val Gly Gln Lys Thr Thr Arg His Lys Phe Glu Asn Lys Ile Asn Ile	
645 650 655	
aca tgt ccg tca cag gtc cag ccg ttt ctg agg acc tac aag aac agc	2016
Thr Cys Pro Ser Gln Val Gln Pro Phe Leu Arg Thr Tyr Lys Asn Ser	
660 665 670	
atg cag ggt cat ggg acc tgg ctg cca tgc agg gac aga gcc cct tct	2064
Met Gln Gly His Gly Thr Trp Leu Pro Cys Arg Asp Arg Ala Pro Ser	
675 680 685	
gcc ttg cac cct acc tca gtg cat gcc ctg aga cct gca gac atc caa	2112
Ala Leu His Pro Thr Ser Val His Ala Leu Arg Pro Ala Asp Ile Gln	
690 695 700	
gtt gtg gct gct ctg ggg gat tct ctg acc gct ggc aat gga att ggc	2160
Val Val Ala Ala Leu Gly Asp Ser Leu Thr Ala Gly Asn Gly Ile Gly	
705 710 715 720	
tcc aaa cca gac gac ctc ccc gat gtc acc aca cag tat cgg gga ctg	2208

Ser Lys Pro Asp Asp Leu Pro Asp Val Thr Thr Gln Tyr Arg Gly Leu	
725 730 735	
tca tac agt gca gga ggg gac ggc tcc ctg gag aat gtg acc acc tta	2256
Ser Tyr Ser Ala Gly Gly Asp Gly Ser Leu Glu Asn Val Thr Thr Leu	
740 745 750	
cct agt tct atc ctt cgg gag ttt aac aga aac ctc aca ggc tac gcc	2304
Pro Ser Ser Ile Leu Arg Glu Phe Asn Arg Asn Leu Thr Gly Tyr Ala	
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Val Gly Thr Gly Asp Ala Asn Asp Thr Asn Ala Phe Leu Asn Gln Ala	
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Val Pro Gly Ala Lys Ala Arg Asp Leu Met Ser Gln Val Gln Thr Leu	
785 790 795 800	
atg cag aag atg aaa gat gat cat aga gta aat ttc cat gaa gac tgg	2448
Met Gln Lys Met Lys Asp Asp His Arg Val Asn Phe His Glu Asp Trp	
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Lys Val Ile Thr Val Leu Ile Gly Gly Ser Asp Leu Cys Asp Tyr Cys	
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Thr Asp Ser Asn Leu Tyr Ser Ala Ala Asn Phe Val His His Leu Arg	
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Asn Ala Leu Asp Val Leu His Arg Glu Val Pro Arg Val Leu Val Asn	
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Asn Pro Asp Lys Cys Pro Val Gln Gln Ala Ser Val Leu Cys Asn Cys	
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Val Leu Thr Leu Arg Glu Asn Ser Gln Glu Leu Ala Arg Leu Glu Ala	
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Phe Ser Arg Ala Tyr Gln Ser Ser Met Arg Glu Leu Val Gly Ser Gly	
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Arg Tyr Asp Thr Gln Glu Asp Phe Ser Val Val Leu Gln Pro Phe Phe	
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Gln Asn Ile Gln Leu Pro Val Leu Gln Asp Gly Leu Pro Asp Thr Ser	

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Phe Phe Ala Pro Asp Cys Ile His Pro Asn Gln Lys Phe His Ser Gln				
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ctg gcc aga gcc ctt tgg acc aat atg ctt gaa cca ctt gga agc aaa				2976
Leu Ala Arg Ala Leu Trp Thr Asn Met Leu Glu Pro Leu Gly Ser Lys				
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Thr Glu Thr Leu Asp Leu Arg Ala Glu Met Pro Ile Thr Cys Pro Thr				
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cag aat gag ccc ttc ctg aga acc cct cgg aat agt aac tac acg tac				3072
Gln Asn Glu Pro Phe Leu Arg Thr Pro Arg Asn Ser Asn Tyr Thr Tyr				
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ccc atc aag cca gcc att gag aac tgg ggc agt gac ttc ctg tgt aca				3120
Pro Ile Lys Pro Ala Ile Glu Asn Trp Gly Ser Asp Phe Leu Cys Thr				
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Glu Trp Lys Ala Ser Asn Ser Val Pro Thr Ser Val His Gln Leu Arg				
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cca gca gac atc aaa gtg gtg gcc gcc ctg ggt gac tct ctg act aca				3216
Pro Ala Asp Ile Lys Val Val Ala Ala Leu Gly Asp Ser Leu Thr Thr				
	060	065	070	
gca gtg gga gct cga cca aac aac tcc agt gac cta ccc aca tct tgg				3264
Ala Val Gly Ala Arg Pro Asn Asn Ser Ser Asp Leu Pro Thr Ser Trp				
	075	080	085	
agg gga ctc tct tgg agc att gga ggg gat ggg aac ttg gag act cac				3312
Arg Gly Leu Ser Trp Ser Ile Gly Gly Asp Gly Asn Leu Glu Thr His				
	090	095	100	
acc aca ctg ccc agt att ctg aag aag ttc aac cct tac ctc ctt ggc				3360
Thr Thr Leu Pro Ser Ile Leu Lys Lys Phe Asn Pro Tyr Leu Leu Gly				
	105	110	115	120
ttc tct acc agc acc tgg gag ggg aca gca gga cta aat gtg gca gcg				3408
Phe Ser Thr Ser Thr Trp Glu Gly Thr Ala Gly Leu Asn Val Ala Ala				
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gaa ggg gcc aga gct agg agg gac atg cca gcc cag gcc tgg gac ctg				3456
Glu Gly Ala Arg Ala Arg Arg Asp Met Pro Ala Gln Ala Trp Asp Leu				
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gta gag cga atg aaa aac agc ccc ata cac ttt cag gaa gac tgg aag				3504
Val Glu Arg Met Lys Asn Ser Pro Ile His Phe Gln Glu Asp Trp Lys				
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ata ata acc ctg ttt ata ggc ggc aat gac ctc tgt gat ttc tgc aat				3552
Ile Ile Thr Leu Phe Ile Gly Gly Asn Asp Leu Cys Asp Phe Cys Asn				
	170	175	180	

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Asp Leu Val Gly Glu Tyr Val Gln His Ile Gln Gln Ala Leu Asp Ile	
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Leu Ser Glu Glu Leu Pro Arg Ala Phe Val Asn Val Val Glu Val Met	
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Glu Leu Ala Ser Leu Tyr Gln Gly Gln Gly Gly Lys Cys Ala Met Leu	
220                                      225                                      230	
gca gct cag aac aac tgc act tgc ctc aga cac tcg caa agc tcc ctg	3744
Ala Ala Gln Asn Asn Cys Thr Cys Leu Arg His Ser Gln Ser Ser Leu	
235                                      240                                      245	
gag aag caa gaa ctg aag aaa gtg aac tgg aac ctc cag cat ggc atc	3792
Glu Lys Gln Glu Leu Lys Lys Val Asn Trp Asn Leu Gln His Gly Ile	
250                                      255                                      260	
tcc agt ttc tcc tac tgg cac caa tac aca cag cgt gag gac ttt gcg	3840
Ser Ser Phe Ser Tyr Trp His Gln Tyr Thr Gln Arg Glu Asp Phe Ala	
265                                      270                                      275                                      280	
gtt gtg gtg cag cct ttc ttc caa aac aca ctc acc cca ctg aac aga	3888
Val Val Val Gln Pro Phe Phe Gln Asn Thr Leu Thr Pro Leu Asn Arg	
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ggg gac act gac ctc acc ttc ttc tcc gag gac tgt ttt cac ttc tca	3936
Gly Asp Thr Asp Leu Thr Phe Phe Ser Glu Asp Cys Phe His Phe Ser	
300                                      305                                      310	
gac cgc ggg cat gcc gag atg gcc atc gca ctc tgg aac aac atg ctg	3984
Asp Arg Gly His Ala Glu Met Ala Ile Ala Leu Trp Asn Asn Met Leu	
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gaa cca gtg ggc cgc aag act acc tcc aac aac ttc acc cac agc cga	4032
Glu Pro Val Gly Arg Lys Thr Thr Ser Asn Asn Phe Thr His Ser Arg	
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gcc aaa ctc aag tgc ccc tct cct gtg agt cct tac ctc tac acc ctg	4080
Ala Lys Leu Lys Cys Pro Ser Pro Val Ser Pro Tyr Leu Tyr Thr Leu	
345                                      350                                      355                                      360	
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Arg Asn Ser Arg Leu Leu Pro Asp Gln Ala Glu Glu Ala Pro Glu Val	
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ctc tac tgg gct gtc cca gtg gca gcg gga gtc ggc ctt gtg gtg ggc	4176
Leu Tyr Trp Ala Val Pro Val Ala Ala Gly Val Gly Leu Val Val Gly	
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Ile Ile Gly Thr Val Val Trp Arg Cys Arg Arg Gly Gly Arg Arg Glu	
395                                      400                                      405	

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 Cys Leu Ser Pro Leu Val His Gln Leu Arg Pro Ala Asp Ile Lys Val  
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 Val Ala Ala Leu Gly Asn Asp Glu Thr Phe Gln Glu Ser Gly Ala Gly  
 65 70 75 80  
 Gln Leu Ser Glu Pro Asp Pro Arg Gln Trp Ser Trp Pro Gln Ala Cys  
 85 90 95  
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 Pro Ser Arg Arg Arg Ser Leu Arg Arg Arg Glu Ala Leu Val Pro Ala  
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 Ala Gly Lys Glu Ser Leu Cys Arg Gln Asp Ile Phe Ile Ser Leu Leu  
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 Glu Ile Ile Lys His Phe Pro Pro Ser Pro Gln Asp Ile Asn Leu Glu  
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 Lys Asp Trp Lys Leu Val Thr Leu Phe Ile Gly Val Asn Asp Leu Cys  
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 His Tyr Cys Pro Leu Val Gln Gly Pro Val Ile Asp Leu Gly Gly Met  
 180 185 190  
 Asp Thr Leu His Ser Leu Gln Leu Pro Arg Ala Phe Val Asn Val Val  
 195 200 205  
 Glu Val Met Glu Leu Ala Ser Leu Tyr Gln Gly Gln Gly Gly Lys Cys  
 210 215 220  
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225	230	235	240
Arg Tyr Ser Glu Gln Glu Ser Phe Thr Val Val Phe Gln Pro Phe Phe			
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Tyr Glu Thr Thr Pro Ser Asp Pro Arg Leu Gln Asp Ser Thr Thr Leu			
260	265	270	
Ala Trp His Leu Trp Asn Arg Met Met Glu Pro Ala Gly Glu Lys Asp			
275	280	285	
Glu Pro Leu Ser Val Lys His Gly Arg Pro Met Lys Cys Pro Ser Gln			
290	295	300	
Glu Ser Pro Tyr Leu Phe Ser Tyr Arg Asn Ser Asn Tyr Leu Thr Arg			
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Leu Gln Lys Pro Gln Asp Lys Leu Val Arg Glu Gly Ala Glu Ile Arg			
325	330	335	
Cys Pro Asp Lys Asp Pro Ser Asp Thr Val Pro Thr Ser Val His Arg			
340	345	350	
Leu Lys Pro Ala Asp Ile Asn Val Ile Gly Ala Leu Gly Asp Ser Leu			
355	360	365	
Thr Ala Gly Asn Gly Ala Gly Ser Thr Pro Gly Asn Val Leu Asp Val			
370	375	380	
Leu Thr Gln Tyr Arg Gly Leu Ser Trp Ser Val Gly Gly Asp Glu Asn			
385	390	395	400
Ile Gly Thr Val Thr Thr Leu Ala Asp Ile Leu Arg Glu Phe Asn Pro			
405	410	415	
Ser Leu Lys Gly Phe Ser Val Gly Thr Gly Lys Glu Thr Ser Pro Asn			
420	425	430	
Ala Phe Leu Asn Gln Ala Val Ala Gly Gly Arg Ala Glu Gln Ala Arg			
435	440	445	
Arg Leu Val Asp Leu Met Lys Asn Asp Thr Arg Ile His Phe Gln Glu			
450	455	460	
Asp Trp Lys Ile Ile Thr Leu Phe Ile Gly Gly Asn Asp Leu Cys Asp			
465	470	475	480
Phe Cys Asn Asp Leu Val His Tyr Ser Pro Gln Asn Phe Thr Asp Asn			
485	490	495	
Ile Gly Lys Ala Leu Asp Ile Leu His Ala Glu Ser Gln Val Pro Arg			
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Ala Phe Val Asn Leu Val Thr Val Leu Glu Ile Val Asn Leu Arg Glu			
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Thr Leu Ile Glu Phe	Asn Lys Lys Phe Gln Glu Lys Thr His Gln Leu	
	565	570 575
Ile Glu Ser Gly Arg Tyr Asp Thr Arg Glu Asp Phe Thr Val Val Val		
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Gln Pro Phe Phe Glu Asn Val Asp Met Pro Lys Thr Gln Glu Gly Leu		
	595	600 605
Pro Asp Asn Ser Phe Phe Ala Pro Asp Cys Phe His Phe Ser Ser Lys		
	610	615 620
Ser His Ser Arg Ala Ala Ser Ala Leu Trp Asn Asn Met Leu Glu Pro		
	625	630 635 640
Val Gly Gln Lys Thr Thr Arg His Lys Phe Glu Asn Lys Ile Asn Ile		
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Thr Cys Pro Ser Gln Val Gln Pro Phe Leu Arg Thr Tyr Lys Asn Ser		
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Met Gln Gly His Gly Thr Trp Leu Pro Cys Arg Asp Arg Ala Pro Ser		
	675	680 685
Ala Leu His Pro Thr Ser Val His Ala Leu Arg Pro Ala Asp Ile Gln		
	690	695 700
Val Val Ala Ala Leu Gly Asp Ser Leu Thr Ala Gly Asn Gly Ile Gly		
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Ser Lys Pro Asp Asp Leu Pro Asp Val Thr Thr Gln Tyr Arg Gly Leu		
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Ser Tyr Ser Ala Gly Gly Asp Gly Ser Leu Glu Asn Val Thr Thr Leu		
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Pro Ser Ser Ile Leu Arg Glu Phe Asn Arg Asn Leu Thr Gly Tyr Ala		
	755	760 765
Val Gly Thr Gly Asp Ala Asn Asp Thr Asn Ala Phe Leu Asn Gln Ala		
	770	775 780
Val Pro Gly Ala Lys Ala Arg Asp Leu Met Ser Gln Val Gln Thr Leu		
	785	790 795 800
Met Gln Lys Met Lys Asp Asp His Arg Val Asn Phe His Glu Asp Trp		
	805	810 815
Lys Val Ile Thr Val Leu Ile Gly Gly Ser Asp Leu Cys Asp Tyr Cys		
	820	825 830
Thr Asp Ser Asn Leu Tyr Ser Ala Ala Asn Phe Val His His Leu Arg		

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Asn Ala Leu Asp Val Leu His Arg Glu Val Pro Arg Val Leu Val Asn		
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Leu Val Asp Phe Leu Asn Pro Thr Ile Met Arg Gln Val Phe Leu Gly		
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Asn Pro Asp Lys Cys Pro Val Gln Gln Ala Ser Val Leu Cys Asn Cys		
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Val Leu Thr Leu Arg Glu Asn Ser Gln Glu Leu Ala Arg Leu Glu Ala		
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Phe Ser Arg Ala Tyr Gln Ser Ser Met Arg Glu Leu Val Gly Ser Gly		
	915	920
Arg Tyr Asp Thr Gln Glu Asp Phe Ser Val Val Leu Gln Pro Phe Phe		
	930	935
Gln Asn Ile Gln Leu Pro Val Leu Gln Asp Gly Leu Pro Asp Thr Ser		
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Phe Phe Ala Pro Asp Cys Ile His Pro Asn Gln Lys Phe His Ser Gln		
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Leu Ala Arg Ala Leu Trp Thr Asn Met Leu Glu Pro Leu Gly Ser Lys		
	980	985
Thr Glu Thr Leu Asp Leu Arg Ala Glu Met Pro Ile Thr Cys Pro Thr		
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Gln Asn Glu Pro Phe Leu Arg Thr Pro Arg Asn Ser Asn Tyr Thr Tyr		
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Pro Ile Lys Pro Ala Ile Glu Asn Trp Gly Ser Asp Phe Leu Cys Thr		
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Glu Trp Lys Ala Ser Asn Ser Val Pro Thr Ser Val His Gln Leu Arg		
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Pro Ala Asp Ile Lys Val Val Ala Ala Leu Gly Asp Ser Leu Thr Thr		
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Arg Gly Leu Ser Trp Ser Ile Gly Gly Asp Gly Asn Leu Glu Thr His		
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Ile Ile Thr Leu Phe Ile Gly Gly Asn Asp Leu Cys Asp Phe Cys Asn		
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Ala Ala Gln Asn Asn Cys Thr Cys Leu Arg His Ser Gln Ser Ser Leu		
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Glu Lys Gln Glu Leu Lys Lys Val Asn Trp Asn Leu Gln His Gly Ile		
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Lys Ala Leu Asp Ile Leu His Ala Glu Val Pro Arg Ala Phe Val Asn
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 Tyr Cys Pro Arg Met Ile Leu Arg Ser Leu Cys Pro Cys Val Leu Lys  
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 Lys Phe Gln Glu Lys Thr His Gln Leu Ile Glu Ser Gly Arg Tyr Asp  
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Arg Val Ile Pro His Asp Gly Ala Glu Asp Leu Trp Ile Gln Ala Gln	
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cca gcc cag gcc tgg gac ctg gta gag cga atg aaa aac agc ccc cag	3504
Pro Ala Gln Ala Trp Asp Leu Val Glu Arg Met Lys Asn Ser Pro Gln	
150 155 160	
gac atc aac ctg gag aaa gac tgg aag ctg gtc aca ctc ttc att ggg	3552
Asp Ile Asn Leu Glu Lys Asp Trp Lys Leu Val Thr Leu Phe Ile Gly	
165 170 175	
gtc aac gac ttg tgt cat tac tgt gag aat ccg gta ggc gaa tat gtt	3600

Val Asn Asp Leu Cys His Tyr Cys Glu Asn Pro Val Gly Glu Tyr Val	
180 185 190 195	
cag cac atc caa cag gcc ctg gac atc ctc tct gag gag ctc cca agg	3648
Gln His Ile Gln Gln Ala Leu Asp Ile Leu Ser Glu Glu Leu Pro Arg	
200 205 210	
gct ttc gtc aac gtg gtg gag gtc atg gag ctg gct agc ctg tac cag	3696
Ala Phe Val Asn Val Val Glu Val Met Glu Leu Ala Ser Leu Tyr Gln	
215 220 225	
ggc caa ggc ggg aaa tgt gcc atg ctg gca gct cag aac aac tgc act	3744
Gly Gln Gly Gly Lys Cys Ala Met Leu Ala Ala Gln Asn Asn Cys Thr	
230 235 240	
tgc ctc aga cac tcg caa agc tcc ctg gag aag caa gaa ctg aag aaa	3792
Cys Leu Arg His Ser Gln Ser Ser Leu Glu Lys Gln Glu Leu Lys Lys	
245 250 255	
gtg aac tgg aac ctc cag cat ggc atc tcc agt ttc tcc tac tgg cac	3840
Val Asn Trp Asn Leu Gln His Gly Ile Ser Ser Phe Ser Tyr Trp His	
260 265 270 275	
caa tac aca cag cgt gag gac ttt gcg gtt gtg gtg cag cct ttc ttc	3888
Gln Tyr Thr Gln Arg Glu Asp Phe Ala Val Val Val Gln Pro Phe Phe	
280 285 290	
caa aac aca ctc acc cca ctg aac aga ggg gac act gac ctc acc ttc	3936
Gln Asn Thr Leu Thr Pro Leu Asn Arg Gly Asp Thr Asp Leu Thr Phe	
295 300 305	
ttc tcc gag gac tgt ttt cac ttc tca gac cgc ggg cat gcc gag atg	3984
Phe Ser Glu Asp Cys Phe His Phe Ser Asp Arg Gly His Ala Glu Met	
310 315 320	
gcc atc gca ctc tgg aac aac atg ctg gaa cca gtg ggc cgc aag act	4032
Ala Ile Ala Leu Trp Asn Asn Met Leu Glu Pro Val Gly Arg Lys Thr	
325 330 335	
acc tcc aac aac ttc acc cac agc cga gcc aaa ctc aag tgc ccc tct	4080
Thr Ser Asn Asn Phe Thr His Ser Arg Ala Lys Leu Lys Cys Pro Ser	
340 345 350 355	
cct gag agc cct tac ctc tac acc ctg cgg aac agc cga ttg ctc cca	4128
Pro Glu Ser Pro Tyr Leu Tyr Thr Leu Arg Asn Ser Arg Leu Leu Pro	
360 365 370	
gac cag gct gaa gaa gcc ccc gag gtg ctc tac tgg gct gtc cca gtg	4176
Asp Gln Ala Glu Glu Ala Pro Glu Val Leu Tyr Trp Ala Val Pro Val	
375 380 385	
gca gcg gga gtc ggc ctt gtg gtg ggc atc atc ggg aca gtg gtc tgg	4224
Ala Ala Gly Val Gly Leu Val Val Gly Ile Ile Gly Thr Val Val Trp	
390 395 400	
agg tgc agg aga ggt ggc cgg agg gaa gat cct cca atg agc ctg cgc	4272
Arg Cys Arg Arg Gly Gly Arg Arg Glu Asp Pro Pro Met Ser Leu Arg	

405	410	415	
act gtg gcc ctc taggcccggg ggtgggtcct caccctaaac tccctatagc			4324
Thr Val Ala Leu			
420			
cactctcttc accgccctct gccccagcca ctcccgGCCA ccaggacatg			4374
cttcaatgcc tggTgCCata ggaagcccag gggacagtca caacttcttg			4424
g			4425

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<210>86
<211>1423
<212>PRT
<213> Homo sapiens
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Gly Gln Gly Thr Pro Gln Ile His Thr Ser Pro Arg Lys Ser Thr Leu
      20              25              30

Glu Gly Gln Leu Trp Pro Glu Thr Val His Ser Leu Lys Pro Ser Asp
      35              40              45

Ile Lys Phe Val Ala Ala Ile Gly Asn Leu Glu Ile Val Pro Asp Pro
      50              55              60

Gly Thr Gly Asp Leu Glu Lys Gln Asp Glu Arg Pro Gln Gln Val Cys
      65              70              75              80

Met Gly Val Met Thr Val Leu Ser Asp Ile Ile Arg Tyr Phe Ser Pro
      85              90              95

Ser Val Pro Met Pro Val Cys His Thr Gly Lys Arg Val Ile Pro His
      100             105             110

Asp Gly Ala Glu Asp Leu Trp Ile Gln Ala Gln Glu Leu Val Arg Asn
      115             120             125

Met Lys Glu Asn Gln Leu Asp Phe Gln Phe Asp Trp Lys Leu Ile Asn
      130             135             140

Val Phe Phe Ser Asn Ala Ser Gln Cys Tyr Leu Cys Pro Ser Ala Gln
      145             150             155             160

Gln Asn Gly Leu Ala Ala Gly Gly Val Asp Glu Leu Met Gly Val Leu
      165             170             175

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Asp	Tyr	Leu	Gln	Gln	Glu	Val	Pro	Arg	Ala	Phe	Val	Asn	Leu	Val	Asp	180	185	190
Leu	Ser	Glu	Val	Ala	Glu	Val	Ser	Arg	Gln	Tyr	His	Gly	Thr	Trp	Leu	195	200	205
Ser	Pro	Ala	Pro	Glu	Pro	Cys	Asn	Cys	Ser	Glu	Glu	Thr	Thr	Arg	Leu	210	215	220
Ala	Lys	Val	Val	Met	Gln	Trp	Ser	Tyr	Gln	Glu	Ala	Trp	Asn	Ser	Leu	225	230	235
Leu	Ala	Ser	Ser	Arg	Tyr	Ser	Glu	Gln	Glu	Ser	Phe	Thr	Val	Val	Phe	245	250	255
Gln	Pro	Phe	Phe	Tyr	Glu	Thr	Thr	Pro	Ser	Asp	Pro	Arg	Leu	Gln	Asp	260	265	270
Ser	Thr	Thr	Leu	Ala	Trp	His	Leu	Trp	Asn	Arg	Met	Met	Glu	Pro	Ala	275	280	285
Gly	Glu	Lys	Asp	Glu	Pro	Leu	Ser	Val	Lys	His	Gly	Arg	Pro	Met	Lys	290	295	300
Cys	Pro	Ser	Gln	Glu	Ser	Pro	Tyr	Leu	Phe	Ser	Tyr	Arg	Asn	Ser	Asn	305	310	315
Tyr	Leu	Thr	Arg	Leu	Gln	Lys	Pro	Gln	Asp	Lys	Leu	Glu	Val	Arg	Glu	325	330	335
Gly	Ala	Glu	Ile	Arg	Cys	Pro	Asp	Lys	Asp	Pro	Ser	Asp	Thr	Val	Pro	340	345	350
Thr	Ser	Val	His	Arg	Leu	Lys	Pro	Ala	Asp	Ile	Asn	Val	Ile	Gly	Ala	355	360	365
Leu	Gly	Asp	Ser	Leu	Thr	Ala	Gly	Asn	Gly	Ala	Gly	Ser	Thr	Pro	Gly	370	375	380
Asn	Val	Leu	Asp	Val	Leu	Thr	Gln	Tyr	Arg	Gly	Leu	Ser	Trp	Ser	Val	385	390	395
Gly	Gly	Asp	Glu	Asn	Ile	Gly	Thr	Val	Thr	Thr	Leu	Ala	Asp	Ile	Leu	405	410	415
Arg	Glu	Phe	Asn	Pro	Ser	Leu	Lys	Gly	Phe	Ser	Val	Gly	Thr	Gly	Lys	420	425	430
Glu	Thr	Ser	Pro	Asn	Ala	Phe	Leu	Asn	Gln	Ala	Val	Ala	Gly	Gly	Arg	435	440	445
Ala	Glu	Gln	Ala	Arg	Arg	Leu	Val	Asp	Leu	Met	Lys	Asn	Asp	Thr	Arg	450	455	460
Ile	His	Phe	Gln	Glu	Asp	Trp	Lys	Ile	Ile	Thr	Leu	Phe	Ile	Gly	Gly	465	470	475



Asn	Asp	Leu	Cys	Asp	Phe	Cys	Asn	Asp	Leu	Val	His	Tyr	Ser	Pro	Gln	485	490	495
Asn	Phe	Thr	Asp	Asn	Ile	Gly	Lys	Ala	Leu	Asp	Ile	Leu	His	Ala	Glu	500	505	510
Val	Pro	Arg	Ala	Phe	Val	Asn	Leu	Val	Thr	Val	Leu	Glu	Ile	Val	Asn	515	520	525
Leu	Arg	Glu	Leu	Tyr	Gln	Glu	Lys	Lys	Val	Tyr	Cys	Pro	Arg	Met	Ile	530	535	540
Leu	Arg	Ser	Leu	Cys	Pro	Cys	Val	Leu	Lys	Phe	Asp	Asp	Asn	Ser	Thr	545	550	555
Glu	Leu	Ala	Thr	Leu	Ile	Glu	Phe	Asn	Lys	Lys	Phe	Gln	Glu	Lys	Thr	565	570	575
His	Gln	Leu	Ile	Glu	Ser	Gly	Arg	Tyr	Asp	Thr	Arg	Glu	Asp	Phe	Thr	580	585	590
Val	Val	Val	Gln	Pro	Phe	Phe	Glu	Asn	Val	Asp	Met	Pro	Lys	Thr	Gln	595	600	605
Glu	Gly	Leu	Pro	Asp	Asn	Ser	Phe	Phe	Ala	Pro	Asp	Cys	Phe	His	Phe	610	615	620
Ser	Ser	Lys	Ser	His	Ser	Arg	Ala	Ala	Ser	Ala	Leu	Trp	Asn	Asn	Met	625	630	635
Leu	Glu	Pro	Val	Gly	Gln	Lys	Thr	Thr	Arg	His	Lys	Phe	Glu	Asn	Lys	645	650	655
Ile	Asn	Ile	Thr	Cys	Pro	Asn	Gln	Val	Glu	Trp	Pro	Phe	Leu	Arg	Thr	660	665	670
Tyr	Lys	Asn	Ser	Met	Gln	Gly	His	Gly	Thr	Trp	Leu	Pro	Cys	Arg	Asp	675	680	685
Arg	Ala	Pro	Ser	Ala	Leu	His	Pro	Thr	Ser	Val	His	Ala	Leu	Arg	Pro	690	695	700
Ala	Asp	Ile	Gln	Val	Val	Ala	Ala	Leu	Gly	Asp	Ser	Leu	Thr	Ala	Gly	705	710	715
Asn	Gly	Ile	Gly	Ser	Lys	Pro	Asp	Asp	Leu	Pro	Asp	Val	Thr	Thr	Gln	725	730	735
Tyr	Arg	Gly	Leu	Ser	Tyr	Ser	Ala	Gly	Gly	Asp	Gly	Ser	Leu	Glu	Asn	740	745	750
Val	Thr	Thr	Leu	Pro	Asp	Ile	Leu	Arg	Glu	Phe	Asn	Arg	Asn	Leu	Thr	755	760	765
Gly	Tyr	Ala	Val	Gly	Thr	Gly	Asp	Ala	Asn	Asp	Thr	Asn	Ala	Phe	Leu	770	775	780

Asn Gln Ala Val Pro Gly Ala Lys Ala Arg Asp Leu Met Ser Gln Val  
 785 790 795 800  
 Gln Thr Leu Met Gln Lys Met Lys Asp Asp His Arg Val Asn Phe His  
 805 810 815  
 Glu Asp Trp Lys Val Ile Thr Val Leu Ile Gly Gly Ser Asp Leu Cys  
 820 825 830  
 Asp Tyr Cys Thr Asp Ser Asn Leu Tyr Ser Ala Ala Asn Phe Val His  
 835 840 845  
 His Leu Arg Asn Ala Leu Asp Val Leu His Arg Glu Val Pro Arg Val  
 850 855 860  
 Leu Val Asn Leu Val Asp Phe Leu Asn Pro Thr Ile Met Arg Gln Val  
 865 870 875 880  
 Phe Leu Gly Asn Pro Asp Lys Cys Pro Val Gln Gln Ala Ser Val Leu  
 885 890 895  
 Cys Asn Cys Val Leu Thr Leu Arg Glu Asn Ser Gln Glu Leu Ala Arg  
 900 905 910  
 Leu Glu Ala Phe Ser Arg Ala Tyr Gln Ser Ser Met Arg Glu Leu Val  
 915 920 925  
 Gly Ser Gly Arg Tyr Asp Thr Gln Glu Asp Phe Ser Val Val Leu Gln  
 930 935 940  
 Pro Phe Phe Gln Asn Ile Gln Leu Pro Val Leu Gln Asp Gly Leu Pro  
 945 950 955 960  
 Asp Thr Ser Phe Phe Ala Pro Asp Cys Ile His Pro Asn Gln Lys Phe  
 965 970 975  
 His Ser Gln Leu Ala Arg Ala Leu Trp Thr Asn Met Leu Glu Pro Leu  
 980 985 990  
 Gly Ser Lys Thr Glu Thr Leu Asp Leu Arg Ala Glu Met Pro Ile Thr  
 995 000 005  
 Cys Pro Thr Gln Asn Glu Pro Phe Leu Arg Thr Pro Arg Asn Ser Asn  
 010 015 020  
 Tyr Thr Tyr Pro Ile Lys Pro Ala Ile Glu Asn Trp Gly Ser Asp Phe  
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 Leu Cys Thr Glu Trp Lys Ala Ser Asn Ser Val Pro Thr Ser Val His  
 045 050 055  
 Gln Leu Arg Pro Ala Asp Ile Lys Val Val Ala Ala Leu Gly Asp Ser  
 060 065 070  
 Leu Thr Val Ala Val Gly Ala Arg Pro Asn Asn Ser Ser Asp Leu Pro  
 075 080 085

Thr Ser Trp Arg Gly Leu Ser Trp Ser Ile Gly Gly Asp Gly Asn Leu  
 090 095 100  
 Glu Thr His Thr Thr Leu Pro Asp Ile Leu Lys Lys Phe Asn Pro Tyr  
 105 110 115 120  
 Leu Leu Gly Phe Ser Thr Ser Thr Trp Glu Gly Thr Ala Gly Leu Asn  
 125 130 135  
 Val Ala Ala Glu Gly Ala Arg Ala Arg Asp Met Pro Ala Gln Ala Trp  
 140 145 150  
 Asp Leu Val Glu Arg Met Lys Asn Ser Pro Gln Asp Ile Asn Leu Glu  
 155 160 165  
 Lys Asp Trp Lys Leu Val Thr Leu Phe Ile Gly Val Asn Asp Leu Cys  
 170 175 180  
 His Tyr Cys Glu Asn Pro Val Gly Glu Tyr Val Gln His Ile Gln Gln  
 185 190 195 200  
 Ala Leu Asp Ile Leu Ser Glu Glu Leu Pro Arg Ala Phe Val Asn Val  
 205 210 215  
 Val Glu Val Met Glu Leu Ala Ser Leu Tyr Gln Gly Gln Gly Gly Lys  
 220 225 230  
 Cys Ala Met Leu Ala Ala Gln Asn Asn Cys Thr Cys Leu Arg His Ser  
 235 240 245  
 Gln Ser Ser Leu Glu Lys Gln Glu Leu Lys Lys Val Asn Trp Asn Leu  
 250 255 260  
 Gln His Gly Ile Ser Ser Phe Ser Tyr Trp His Gln Tyr Thr Gln Arg  
 265 270 275 280  
 Glu Asp Phe Ala Val Val Val Gln Pro Phe Phe Gln Asn Thr Leu Thr  
 285 290 295  
 Pro Leu Asn Arg Gly Asp Thr Asp Leu Thr Phe Phe Ser Glu Asp Cys  
 300 305 310  
 Phe His Phe Ser Asp Arg Gly His Ala Glu Met Ala Ile Ala Leu Trp  
 315 320 325  
 Asn Asn Met Leu Glu Pro Val Gly Arg Lys Thr Thr Ser Asn Asn Phe  
 330 335 340  
 Thr His Ser Arg Ala Lys Leu Lys Cys Pro Ser Pro Glu Ser Pro Tyr  
 345 350 355 360  
 Leu Tyr Thr Leu Arg Asn Ser Arg Leu Leu Pro Asp Gln Ala Glu Glu  
 365 370 375  
 Ala Pro Glu Val Leu Tyr Trp Ala Val Pro Val Ala Ala Gly Val Gly  
 380 385 390

Leu Val Val Gly Ile Ile Gly Thr Val Val Trp Arg Cys Arg Arg Gly  
395 400 405

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<211>1348

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(31)..(1294)

<400>87

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gag ccc gcg ggc cgc tgc tgc tgg gac gag ccg ctg cgc atc gca gtg 99  
Glu Pro Ala Gly Arg Cys Cys Trp Asp Glu Pro Leu Arg Ile Ala Val  
10 15 20

cgc ggc ctg gcc ccg gag cag cca gtc acg ctg cgc acg tcc ctg cgc 147  
Arg Gly Leu Ala Pro Glu Gln Pro Val Thr Leu Arg Thr Ser Leu Arg  
25 30 35

gac gaa gag ggc gcg ctc ttc cgg gcc cac gcg cgc tac cgt gcc gac 195  
Asp Glu Glu Gly Ala Leu Phe Arg Ala His Ala Arg Tyr Arg Ala Asp  
40 45 50 55

gcc cgc gac gag ctg gac ctg gag cgc gcg ccc gcg ctg gga ggc agc 243  
Ala Arg Asp Glu Leu Asp Leu Glu Arg Ala Pro Ala Leu Gly Gly Ser  
60 65 70

ttc gcg ggg ctc cag ccc atg ggg ctg ctg tgg gcg ttg gag ccc gag 291  
Phe Ala Gly Leu Gln Pro Met Gly Leu Leu Trp Ala Leu Glu Pro Glu  
75 80 85

aaa gcc ttg gtg cgg ctg gtg aag cgc gac gtg cgg acg ccc ttc gcc 339  
Lys Ala Leu Val Arg Leu Val Lys Arg Asp Val Arg Thr Pro Phe Ala  
90 95 100

gtg gag ctg gaa gtg ctg gac ggc cac gac acc gag ccc ggg cgg ctg 387  
Val Glu Leu Glu Val Leu Asp Gly His Asp Thr Glu Pro Gly Arg Leu  
105 110 115

ctg tgc ctg gcg cag aac aag cgc gac ttt ctc cgg ccg ggg gtg cgg 435  
Leu Cys Leu Ala Gln Asn Lys Arg Asp Phe Leu Arg Pro Gly Val Arg  
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cgc gag ccg gtg cgc gcg ggc ccg gtg cgc gcc gcg ctc ttc ctg ccg 483  
Arg Glu Pro Val Arg Ala Gly Pro Val Arg Ala Ala Leu Phe Leu Pro  
140 145 150

ccg gat agg ggg ccc ttt cct ggg atc att gat ctg ttt ggg agc agc 531  
Pro Asp Arg Gly Pro Phe Pro Gly Ile Ile Asp Leu Phe Gly Ser Ser

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Arg Gly Leu Cys Glu Tyr Arg Ala Ser Leu Leu Ala Gly His Gly Phe			
170	175	180	
gct gtg ctt gcc ctg gct tat ttc aga ttt gaa gac ctc ccc gaa gat			627
Ala Val Leu Ala Leu Ala Tyr Phe Arg Phe Glu Asp Leu Pro Glu Asp			
185	190	195	
ctg aat gat gta cat ctg gag tac ttt gaa gaa gcc gtg gac ttt atg			675
Leu Asn Asp Val His Leu Glu Tyr Phe Glu Glu Ala Val Asp Phe Met			
200	205	210	215
ctg cag cat cca aag gtg aaa ggt cct agt att gcg ctt ctt gga ttt			723
Leu Gln His Pro Lys Val Lys Gly Pro Ser Ile Ala Leu Leu Gly Phe			
	220	225	230
tcc aaa gga ggt gac ctg tgt ctc tca atg gct tct ttc ttg aag ggc			771
Ser Lys Gly Gly Asp Leu Cys Leu Ser Met Ala Ser Phe Leu Lys Gly			
	235	240	245
atc aca gcc act gta ctt atc aat gcc tgt gta gcc aac aca gta gct			819
Ile Thr Ala Thr Val Leu Ile Asn Ala Cys Val Ala Asn Thr Val Ala			
	250	255	260
cct cta cat tac aag gat atg att att cct aaa ctt gtc gat gat cta			867
Pro Leu His Tyr Lys Asp Met Ile Ile Pro Lys Leu Val Asp Asp Leu			
	265	270	275
gga aaa gta aaa atc act aag tca gga ttt ctc act ttt atg gac act			915
Gly Lys Val Lys Ile Thr Lys Ser Gly Phe Leu Thr Phe Met Asp Thr			
280	285	290	295
tgg agc aat cca ctg gag gaa cac aat cac caa agt ctt gtt cca ttg			963
Trp Ser Asn Pro Leu Glu Glu His Asn His Gln Ser Leu Val Pro Leu			
	300	305	310
gaa aag gcg cag gtg ccc ttc ttg ttt att gtt ggc atg gat gat caa			1011
Glu Lys Ala Gln Val Pro Phe Leu Phe Ile Val Gly Met Asp Asp Gln			
	315	320	325
agc tgg aag agt gaa ttc tat gct cag ata gcc tct gaa agg cta caa			1059
Ser Trp Lys Ser Glu Phe Tyr Ala Gln Ile Ala Ser Glu Arg Leu Gln			
	330	335	340
gct cat ggg aaa gaa aga ccc cag ata atc tgt tac cca gaa act ggt			1107
Ala His Gly Lys Glu Arg Pro Gln Ile Ile Cys Tyr Pro Glu Thr Gly			
	345	350	355
cac tgt att gac cca cct tat ttt cct cct tct aga gct tct gtg cac			1155
His Cys Ile Asp Pro Pro Tyr Phe Pro Pro Ser Arg Ala Ser Val His			
	360	365	370
gct gtt ttg ggt gag gca ata ttc tat gga ggt gag cca aag gct cac			1203
Ala Val Leu Gly Glu Ala Ile Phe Tyr Gly Gly Glu Pro Lys Ala His			
	380	385	390

tca aag gca cag gta gat gcc tgg cag caa att caa act ttc ttc cat	1251
Ser Lys Ala Gln Val Asp Ala Trp Gln Gln Ile Gln Thr Phe Phe His	
395 400 405	

aaa cat ctc aat ggt aaa aaa tct gtc aag cac agc aaa ata	1293
Lys His Leu Asn Gly Lys Lys Ser Val Lys His Ser Lys Ile	
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 <212>PRT  
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			20					25					30				
Thr	Leu	Arg	Thr	Ser	Leu	Arg	Asp	Glu	Glu	Gly	Ala	Leu	Phe	Arg	Ala		
		35					40						45				
His	Ala	Arg	Tyr	Arg	Ala	Asp	Ala	Arg	Asp	Glu	Leu	Asp	Leu	Glu	Arg		
	50					55					60						
Ala	Pro	Ala	Leu	Gly	Gly	Ser	Phe	Ala	Gly	Leu	Gln	Pro	Met	Gly	Leu		
65				70					75					80			
Leu	Trp	Ala	Leu	Glu	Pro	Glu	Lys	Ala	Leu	Val	Arg	Leu	Val	Lys	Arg		
			85					90					95				
Asp	Val	Arg	Thr	Pro	Phe	Ala	Val	Glu	Leu	Glu	Val	Leu	Asp	Gly	His		
			100				105						110				
Asp	Thr	Glu	Pro	Gly	Arg	Leu	Leu	Cys	Leu	Ala	Gln	Asn	Lys	Arg	Asp		
		115				120						125					
Phe	Leu	Arg	Pro	Gly	Val	Arg	Arg	Glu	Pro	Val	Arg	Ala	Gly	Pro	Val		
	130				135						140						
Arg	Ala	Ala	Leu	Phe	Leu	Pro	Pro	Asp	Arg	Gly	Pro	Phe	Pro	Gly	Ile		
145				150					155					160			
Ile	Asp	Leu	Phe	Gly	Ser	Ser	Arg	Gly	Leu	Cys	Glu	Tyr	Arg	Ala	Ser		
			165					170					175				
Leu	Leu	Ala	Gly	His	Gly	Phe	Ala	Val	Leu	Ala	Leu	Ala	Tyr	Phe	Arg		

180	185	190
Phe Glu Asp Leu Pro Glu Asp	Leu Asn Asp Val His Leu Glu Tyr Phe	
195	200	205
Glu Glu Ala Val Asp Phe Met Leu Gln His Pro Lys Val Lys Gly Pro		
210	215	220
Ser Ile Ala Leu Leu Gly Phe Ser Lys Gly Gly Asp Leu Cys Leu Ser		
225	230	235
Met Ala Ser Phe Leu Lys Gly Ile Thr Ala Thr Val Leu Ile Asn Ala		
245	250	255
Cys Val Ala Asn Thr Val Ala Pro Leu His Tyr Lys Asp Met Ile Ile		
260	265	270
Pro Lys Leu Val Asp Asp Leu Gly Lys Val Lys Ile Thr Lys Ser Gly		
275	280	285
Phe Leu Thr Phe Met Asp Thr Trp Ser Asn Pro Leu Glu Glu His Asn		
290	295	300
His Gln Ser Leu Val Pro Leu Glu Lys Ala Gln Val Pro Phe Leu Phe		
305	310	315
Ile Val Gly Met Asp Asp Gln Ser Trp Lys Ser Glu Phe Tyr Ala Gln		
325	330	335
Ile Ala Ser Glu Arg Leu Gln Ala His Gly Lys Glu Arg Pro Gln Ile		
340	345	350
Ile Cys Tyr Pro Glu Thr Gly His Cys Ile Asp Pro Pro Tyr Phe Pro		
355	360	365
Pro Ser Arg Ala Ser Val His Ala Val Leu Gly Glu Ala Ile Phe Tyr		
370	375	380
Gly Gly Glu Pro Lys Ala His Ser Lys Ala Gln Val Asp Ala Trp Gln		
385	390	395
Gln Ile Gln Thr Phe Phe His Lys His Leu Asn Gly Lys Lys Ser Val		
405	410	415
Lys His Ser Lys Ile		
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<211>1021

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(9)..(1011)

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47

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tgc	tgg	gac	gag	ccg	ctg	cgc	atc	gca	gtg	cgc	ggc	ctg	gcc	ccg	gag	95
Cys	Trp	Asp	Glu	Pro	Leu	Arg	Ile	Ala	Val	Arg	Gly	Leu	Ala	Pro	Glu	
	15				20					25						
cag	cca	gtc	acg	ctg	cgc	acg	tcc	ctg	cgc	gac	gaa	gag	ggc	gcg	ctc	143
Gln	Pro	Val	Thr	Leu	Arg	Thr	Ser	Leu	Arg	Asp	Glu	Glu	Gly	Ala	Leu	
	30				35					40					45	
ttc	cgg	gcc	cac	gcg	cgc	tac	cgt	gcc	gac	gcc	tct	aat	ccc	ggc	act	191
Phe	Arg	Ala	His	Ala	Arg	Tyr	Arg	Ala	Asp	Ala	Ser	Asn	Pro	Gly	Thr	
				50					55					60		
ttg	ggg	ggc	caa	ggc	agg	ggg	ccc	ttt	cct	ggg	atc	att	gat	ctg	ttt	239
Leu	Gly	Gly	Gln	Gly	Arg	Gly	Pro	Phe	Pro	Gly	Ile	Ile	Asp	Leu	Phe	
			65					70					75			
ggg	agc	agc	agg	ggc	ctt	tgt	gaa	tac	agg	gcc	agc	ctc	ctg	gcc	gga	287
Gly	Ser	Ser	Arg	Gly	Leu	Cys	Glu	Tyr	Arg	Ala	Ser	Leu	Leu	Ala	Gly	
			80				85					90				
cat	ggt	ttt	gct	gtg	ctt	gcc	ctg	gct	tat	ttc	aga	ttt	gaa	gac	ctc	335
His	Gly	Phe	Ala	Val	Leu	Ala	Leu	Ala	Tyr	Phe	Arg	Phe	Glu	Asp	Leu	
	95					100					105					
ccc	gaa	gat	ctg	aat	gat	gta	cat	ctg	gag	tac	ttt	gaa	gaa	gcc	gtg	383
Pro	Glu	Asp	Leu	Asn	Asp	Val	His	Leu	Glu	Tyr	Phe	Glu	Glu	Ala	Val	
	110				115				120					125		
gac	ttt	atg	ctg	cag	cat	cca	aag	gtg	aaa	ggt	cct	agt	att	gcg	ctt	431
Asp	Phe	Met	Leu	Gln	His	Pro	Lys	Val	Lys	Gly	Pro	Ser	Ile	Ala	Leu	
				130					135					140		
ctt	gga	ttt	tcc	aaa	gga	ggt	gac	ctg	tgt	ctc	tca	atg	gct	tct	ttc	479
Leu	Gly	Phe	Ser	Lys	Gly	Gly	Asp	Leu	Cys	Leu	Ser	Met	Ala	Ser	Phe	
			145					150					155			
ttg	aag	ggc	atc	aca	gcc	act	gta	ctt	atc	aat	gcc	tgt	gta	gcc	aac	527
Leu	Lys	Gly	Ile	Thr	Ala	Thr	Val	Leu	Ile	Asn	Ala	Cys	Val	Ala	Asn	
		160					165					170				
aca	gta	gct	cct	cta	cat	tac	aag	gat	atg	att	att	cct	aaa	ctt	gtc	575
Thr	Val	Ala	Pro	Leu	His	Tyr	Lys	Asp	Met	Ile	Ile	Pro	Lys	Leu	Val	
		175				180					185					
gat	gat	cta	gga	aaa	gta	aaa	atc	act	aag	tca	gga	ttt	ctc	act	ttt	623
Asp	Asp	Leu	Gly	Lys	Val	Lys	Ile	Thr	Lys	Ser	Gly	Phe	Leu	Thr	Phe	
	190				195					200				205		
atg	gac	act	tgg	agc	aat	cca	ctg	gag	gaa	cac	aat	cac	caa	agt	ctt	671
Met	Asp	Thr	Trp	Ser	Asn	Pro	Leu	Glu	Glu	His	Asn	His	Gln	Ser	Leu	
				210					215					220		
gtt	cca	ttg	gaa	aag	gcg	cag	gtg	ccc	ttc	ttg	ttt	att	gtt	ggc	atg	719
Val	Pro	Leu	Glu	Lys	Ala	Gln	Val	Pro	Phe	Leu	Phe	Ile	Val	Gly	Met	



225	230	235	
gat gat caa agc tgg aag agt gaa ttc tat gct cag ata gcc tct gaa			767
Asp Asp Gln Ser Trp Lys Ser Glu Phe Tyr Ala Gln Ile Ala Ser Glu			
240	245	250	
agg cta caa gct cat ggg aaa gaa aga ccc cag ata atc tgt tac cca			815
Arg Leu Gln Ala His Gly Lys Glu Arg Pro Gln Ile Ile Cys Tyr Pro			
255	260	265	
gaa act ggt cac tgt att gac cca cct tat ttt cct cct tct aga gct			863
Glu Thr Gly His Cys Ile Asp Pro Pro Tyr Phe Pro Pro Ser Arg Ala			
270	275	280	285
tct gtg cac gct gtt ttg ggt gag gca ata ttc tat gga ggt gag cca			911
Ser Val His Ala Val Leu Gly Glu Ala Ile Phe Tyr Gly Gly Glu Pro			
290	295	300	
aag gct cac tca aag gca cag gta gat gcc tgg cag caa att caa act			959
Lys Ala His Ser Lys Ala Gln Val Asp Ala Trp Gln Gln Ile Gln Thr			
305	310	315	
ttc ttc cat aaa cat ctc aat ggt aaa aaa tct gtc aag cac agc aaa			1007
Phe Phe His Lys His Leu Asn Gly Lys Lys Ser Val Lys His Ser Lys			
320	325	330	
ata taacattgta g			1021
Ile			

<210>90

<211>334

<212>PRT

<213> Homo sapiens

<400>90

Met	Ala	Ala	Thr	Leu	Ile	Leu	Glu	Pro	Ala	Gly	Arg	Cys	Cys	Trp	Asp
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Glu	Pro	Leu	Arg	Ile	Ala	Val	Arg	Gly	Leu	Ala	Pro	Glu	Gln	Pro	Val
		20						25					30		

Thr	Leu	Arg	Thr	Ser	Leu	Arg	Asp	Glu	Glu	Gly	Ala	Leu	Phe	Arg	Ala
		35					40					45			

His	Ala	Arg	Tyr	Arg	Ala	Asp	Ala	Ser	Asn	Pro	Gly	Thr	Leu	Gly	Gly
	50					55					60				

Gln	Gly	Arg	Gly	Pro	Phe	Pro	Gly	Ile	Ile	Asp	Leu	Phe	Gly	Ser	Ser
	65			70						75				80	

Arg	Gly	Leu	Cys	Glu	Tyr	Arg	Ala	Ser	Leu	Leu	Ala	Gly	His	Gly	Phe
			85						90				95		

Ala	Val	Leu	Ala	Leu	Ala	Tyr	Phe	Arg	Phe	Glu	Asp	Leu	Pro	Glu	Asp
			100					105					110		

Leu Asn Asp Val His Leu Glu Tyr Phe Glu Glu Ala Val Asp Phe Met  
 115 120 125  
 Leu Gln His Pro Lys Val Lys Gly Pro Ser Ile Ala Leu Leu Gly Phe  
 130 135 140  
 Ser Lys Gly Gly Asp Leu Cys Leu Ser Met Ala Ser Phe Leu Lys Gly  
 145 150 155 160  
 Ile Thr Ala Thr Val Leu Ile Asn Ala Cys Val Ala Asn Thr Val Ala  
 165 170 175  
 Pro Leu His Tyr Lys Asp Met Ile Ile Pro Lys Leu Val Asp Asp Leu  
 180 185 190  
 Gly Lys Val Lys Ile Thr Lys Ser Gly Phe Leu Thr Phe Met Asp Thr  
 195 200 205  
 Trp Ser Asn Pro Leu Glu Glu His Asn His Gln Ser Leu Val Pro Leu  
 210 215 220  
 Glu Lys Ala Gln Val Pro Phe Leu Phe Ile Val Gly Met Asp Asp Gln  
 225 230 235 240  
 Ser Trp Lys Ser Glu Phe Tyr Ala Gln Ile Ala Ser Glu Arg Leu Gln  
 245 250 255  
 Ala His Gly Lys Glu Arg Pro Gln Ile Ile Cys Tyr Pro Glu Thr Gly  
 260 265 270  
 His Cys Ile Asp Pro Pro Tyr Phe Pro Pro Ser Arg Ala Ser Val His  
 275 280 285  
 Ala Val Leu Gly Glu Ala Ile Phe Tyr Gly Gly Glu Pro Lys Ala His  
 290 295 300  
 Ser Lys Ala Gln Val Asp Ala Trp Gln Gln Ile Gln Thr Phe Phe His  
 305 310 315 320  
 Lys His Leu Asn Gly Lys Lys Ser Val Lys His Ser Lys Ile  
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<210>91

<211>1021

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(9) .. (1011)

<400>91

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 Met Ala Ala Thr Leu Ile Leu Glu Pro Ala Gly Arg Cys  
 1 5 10

47

tgc tgg gac gag ccg ctg cgc atc gca gtg cgc ggc ctg gcc ccg gag  
 Cys Trp Asp Glu Pro Leu Arg Ile Ala Val Arg Gly Leu Ala Pro Glu

95

15	20	25	
cag cca gtc acg ctg cgc acg tcc ctg cgc gac gaa gag ggc gcg ctc			143
Gln Pro Val Thr Leu Arg Thr Ser Leu Arg Asp Glu Glu Gly Ala Leu			
30	35	40	45
ttc cgg gcc cac gcg cgc tac cgt gcc gac gcc tct aat ccc ggc act			191
Phe Arg Ala His Ala Arg Tyr Arg Ala Asp Ala Ser Asn Pro Gly Thr			
50	55	60	
ttg gga ggc caa ggc agg ggg ccc ttt cct ggg atc att gat ctg ttt			239
Leu Gly Gly Gln Gly Arg Gly Pro Phe Pro Gly Ile Ile Asp Leu Phe			
65	70	75	
ggg agc agc agg ggc ctt tgt gaa tac agg gcc agc ctc ctg gcc gga			287
Gly Ser Ser Arg Gly Leu Cys Glu Tyr Arg Ala Ser Leu Leu Ala Gly			
80	85	90	
cat ggt ttt gct gtg ctt gcc ctg gct tat ttc aga ttt gaa gac ctc			335
His Gly Phe Ala Val Leu Ala Leu Ala Tyr Phe Arg Phe Glu Asp Leu			
95	100	105	
ccc gaa gat ctg aat gat gta cat ctg gag tac ttt gaa gaa gcc gtg			383
Pro Glu Asp Leu Asn Asp Val His Leu Glu Tyr Phe Glu Glu Ala Val			
110	115	120	125
gac ttt atg ctg cag cat cca aag gtg aaa ggt cct agt att gcg ctt			431
Asp Phe Met Leu Gln His Pro Lys Val Lys Gly Pro Ser Ile Ala Leu			
130	135	140	
ctt gga ttt tcc aaa gga ggt gac ctg tgt ctc tca atg gct tct ttc			479
Leu Gly Phe Ser Lys Gly Gly Asp Leu Cys Leu Ser Met Ala Ser Phe			
145	150	155	
ttg aag ggc atc aca gcc act gta ctt atc aat gcc tgt gta gcc aac			527
Leu Lys Gly Ile Thr Ala Thr Val Leu Ile Asn Ala Cys Val Ala Asn			
160	165	170	
aca gta gct cct cta cat tac aag gat atg att att cct aaa ctt gtc			575
Thr Val Ala Pro Leu His Tyr Lys Asp Met Ile Ile Pro Lys Leu Val			
175	180	185	
gat gat cta gga aaa gta aaa atc act aag tca gga ttt ctc act ttt			623
Asp Asp Leu Gly Lys Val Lys Ile Thr Lys Ser Gly Phe Leu Thr Phe			
190	195	200	205
atg gac act tgg agc aat cca ctg gag gaa cac aat cac caa agt ctt			671
Met Asp Thr Trp Ser Asn Pro Leu Glu Glu His Asn His Gln Ser Leu			
210	215	220	
gtt cca ttg gaa aag gcg cag gtg ccc ttc ttg ttt att gtt ggc atg			719
Val Pro Leu Glu Lys Ala Gln Val Pro Phe Leu Phe Ile Val Gly Met			
225	230	235	
gat gat caa agc tgg aag agt gaa ttc tat gct cag ata gcc tct gaa			767
Asp Asp Gln Ser Trp Lys Ser Glu Phe Tyr Ala Gln Ile Ala Ser Glu			
240	245	250	

agg cta caa gct cat ggg aaa gaa aga ccc cag ata atc tgt tac cca	815
Arg Leu Gln Ala His Gly Lys Glu Arg Pro Gln Ile Ile Cys Tyr Pro	
255 260 265	
gaa act ggt cac tgt att gac cca cct tat ttt cct cct tct aga gct	863
Glu Thr Gly His Cys Ile Asp Pro Pro Tyr Phe Pro Pro Ser Arg Ala	
270 275 280 285	
tct gtg cac gct gtt ttg ggt gag gca ata ttc tat gga ggt gag cca	911
Ser Val His Ala Val Leu Gly Glu Ala Ile Phe Tyr Gly Gly Glu Pro	
290 295 300	
aag gct cac tca aag gca cag gta gat gcc tgg cag caa att caa act	959
Lys Ala His Ser Lys Ala Gln Val Asp Ala Trp Gln Gln Ile Gln Thr	
305 310 315	
ttc ttc cat aaa cat ctc aat ggt aaa aaa tct gtc aag cac agc aaa	1007
Phe Phe His Lys His Leu Asn Gly Lys Lys Ser Val Lys His Ser Lys	
320 325 330	
ata taacattgta g	1021
Ile	

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Thr Leu Arg Thr Ser Leu Arg Asp Glu Glu Gly Ala Leu Phe Arg Ala	
35 40 45	
His Ala Arg Tyr Arg Ala Asp Ala Ser Asn Pro Gly Thr Leu Gly Gly	
50 55 60	
Gln Gly Arg Gly Pro Phe Pro Gly Ile Ile Asp Leu Phe Gly Ser Ser	
65 70 75 80	
Arg Gly Leu Cys Glu Tyr Arg Ala Ser Leu Leu Ala Gly His Gly Phe	
85 90 95	
Ala Val Leu Ala Leu Ala Tyr Phe Arg Phe Glu Asp Leu Pro Glu Asp	
100 105 110	
Leu Asn Asp Val His Leu Glu Tyr Phe Glu Glu Ala Val Asp Phe Met	
115 120 125	
Leu Gln His Pro Lys Val Lys Gly Pro Ser Ile Ala Leu Leu Gly Phe	
130 135 140	

Ser Lys Gly Gly Asp Leu Cys Leu Ser Met Ala Ser Phe Leu Lys Gly  
 145 150 155 160  
 Ile Thr Ala Thr Val Leu Ile Asn Ala Cys Val Ala Asn Thr Val Ala  
 165 170 175  
 Pro Leu His Tyr Lys Asp Met Ile Ile Pro Lys Leu Val Asp Asp Leu  
 180 185 190  
 Gly Lys Val Lys Ile Thr Lys Ser Gly Phe Leu Thr Phe Met Asp Thr  
 195 200 205  
 Trp Ser Asn Pro Leu Glu Glu His Asn His Gln Ser Leu Val Pro Leu  
 210 215 220  
 Glu Lys Ala Gln Val Pro Phe Leu Phe Ile Val Gly Met Asp Asp Gln  
 225 230 235 240  
 Ser Trp Lys Ser Glu Phe Tyr Ala Gln Ile Ala Ser Glu Arg Leu Gln  
 245 250 255  
 Ala His Gly Lys Glu Arg Pro Gln Ile Ile Cys Tyr Pro Glu Thr Gly  
 260 265 270  
 His Cys Ile Asp Pro Pro Tyr Phe Pro Pro Ser Arg Ala Ser Val His  
 275 280 285  
 Ala Val Leu Gly Glu Ala Ile Phe Tyr Gly Gly Glu Pro Lys Ala His  
 290 295 300  
 Ser Lys Ala Gln Val Asp Ala Trp Gln Gln Ile Gln Thr Phe Phe His  
 305 310 315 320  
 Lys His Leu Asn Gly Lys Lys Ser Val Lys His Ser Lys Ile  
 325 330

<210>93

<211>1375

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

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<400>93

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cggtctcgg gcctcgacct ttgaattccc cgctccggct ccaag atg tca gca 104  
Met Ser Ala

acg ctg atc ctg gag ccc cca ggc cgc tgc tgc tgg aac gag ccg gtg 152  
Thr Leu Ile Leu Glu Pro Pro Gly Arg Cys Cys Trp Asn Glu Pro Val  
5 10 15

cgc att gcc gtg cgc ggc ctg gcc ccg gag cag cgg gtt acg ctg cgc	200
Arg Ile Ala Val Arg Gly Leu Ala Pro Glu Gln Arg Val Thr Leu Arg	
20 25 30 35	
gcg tcc ctg cgc gac gag aag ggc gcg ctc ttc cgg gcc cac gcg cgc	248
Ala Ser Leu Arg Asp Glu Lys Gly Ala Leu Phe Arg Ala His Ala Arg	
40 45 50	
tac tgc gcc gac gcc cgc ggc gag ctg gac ctg gag cgc gca ccc gcg	296
Tyr Cys Ala Asp Ala Arg Gly Glu Leu Asp Leu Glu Arg Ala Pro Ala	
55 60 65	
ctg ggc ggc agc ttc gcg gga ctc gag ccc atg ggg ctg ctc tgg gcc	344
Leu Gly Gly Ser Phe Ala Gly Leu Glu Pro Met Gly Leu Leu Trp Ala	
70 75 80	
ctg gaa ccc gag aag cct ttt tgg cgc ttc ctg aag cgg gac gta cag	392
Leu Glu Pro Glu Lys Pro Phe Trp Arg Phe Leu Lys Arg Asp Val Gln	
85 90 95	
att cct ttt gtc gtg gag ttg gag gtg ctg gac ggc cac gac ccc gag	440
Ile Pro Phe Val Val Glu Leu Glu Val Leu Asp Gly His Asp Pro Glu	
100 105 110 115	
cct gga cgg ctg ctg tgc cag gcg cag cac gag cgc cac ttc ctc ccg	488
Pro Gly Arg Leu Leu Cys Gln Ala Gln His Glu Arg His Phe Leu Pro	
120 125 130	
cca ggg gtg cgg cgc cag tcg gtg cga gcg ggc cgg gtg cgc gcc acg	536
Pro Gly Val Arg Arg Gln Ser Val Arg Ala Gly Arg Val Arg Ala Thr	
135 140 145	
ctc ttc ctg ccg cca ggt gag cct gga ccc ttc cca ggg atc att gac	584
Leu Phe Leu Pro Pro Gly Glu Pro Gly Pro Phe Pro Gly Ile Ile Asp	
150 155 160	
atc ttt ggt att gga ggg ggc ctc ttg gaa tat cga gcc agc ctc ctt	632
Ile Phe Gly Ile Gly Gly Gly Leu Leu Glu Tyr Arg Ala Ser Leu Leu	
165 170 175	
gct ggc cat ggc ttt gcc acg ttg gct cta gct tat tat aac ttt gaa	680
Ala Gly His Gly Phe Ala Thr Leu Ala Leu Ala Tyr Tyr Asn Phe Glu	
180 185 190 195	
gat ctc ccc aat aac atg gac aac ata tcc ctg gag tac ttc gaa gaa	728
Asp Leu Pro Asn Asn Met Asp Asn Ile Ser Leu Glu Tyr Phe Glu Glu	
200 205 210	
gcc gta tgc tac atg ctt caa cat ccc cag gtt aaa ggc cca ggc att	776
Ala Val Cys Tyr Met Leu Gln His Pro Gln Val Lys Gly Pro Gly Ile	
215 220 225	
ggg ctt ttg ggc att tct cta gga gct gat att tgt ctc tca atg gcc	824
Gly Leu Leu Gly Ile Ser Leu Gly Ala Asp Ile Cys Leu Ser Met Ala	
230 235 240	

tca ttc ttg aag aat gtc tca gcc aca gtt tcc atc aat gga tct ggg	872
Ser Phe Leu Lys Asn Val Ser Ala Thr Val Ser Ile Asn Gly Ser Gly	
245 250 255	
atc agt ggg aac aca gcc atc aac tat aag cac agt agc att cca cca	920
Ile Ser Gly Asn Thr Ala Ile Asn Tyr Lys His Ser Ser Ile Pro Pro	
260 265 270 275	
ttg ggc tat gac ctg agg aga atc aag gta gct ttc tca ggc ctc gtg	968
Leu Gly Tyr Asp Leu Arg Arg Ile Lys Val Ala Phe Ser Gly Leu Val	
280 285 290	
gac att gtg gat ata agg aat gct ctc gta gga ggg tac aag aac ccc	1016
Asp Ile Val Asp Ile Arg Asn Ala Leu Val Gly Gly Tyr Lys Asn Pro	
295 300 305	
agc atg att cca ata gag aag gcc cag ggg ccc atc ctg ctc att gtt	1064
Ser Met Ile Pro Ile Glu Lys Ala Gln Gly Pro Ile Leu Leu Ile Val	
310 315 320	
ggt cag gat gac cat aac tgg aga agt gag ttg tat gcc caa aca gtc	1112
Gly Gln Asp Asp His Asn Trp Arg Ser Glu Leu Tyr Ala Gln Thr Val	
325 330 335	
tct gaa cgg tta cag gcc cat gga aag gaa aaa ccc cag atc atc tgt	1160
Ser Glu Arg Leu Gln Ala His Gly Lys Glu Lys Pro Gln Ile Ile Cys	
340 345 350 355	
tac cct ggg act ggg cat tac atc gag cct cct tac ttc ccc ctg tgc	1208
Tyr Pro Gly Thr Gly His Tyr Ile Glu Pro Pro Tyr Phe Pro Leu Cys	
360 365 370	
cca gct tcc ctt cac aga tta ctg aac aaa cat gtt ata tgg ggt ggg	1256
Pro Ala Ser Leu His Arg Leu Leu Asn Lys His Val Ile Trp Gly Gly	
375 380 385	
gag ccc agg gct cat tct aag gcc cag gaa gat gcc tgg aag caa att	1304
Glu Pro Arg Ala His Ser Lys Ala Gln Glu Asp Ala Trp Lys Gln Ile	
390 395 400	
cta gcc ttc ttc tgc aaa cac ctg gga ggt acc cag aaa aca gct gtc	1352
Leu Ala Phe Phe Cys Lys His Leu Gly Gly Thr Gln Lys Thr Ala Val	
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cct aaa ttg taatgcattt gtct	1375
Pro Lys Leu	
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Glu Pro Val Arg Ile Ala Val Arg Gly Leu Ala Pro Glu Gln Arg Val  
                   20                  25                  30

Thr Leu Arg Ala Ser Leu Arg Asp Glu Lys Gly Ala Leu Phe Arg Ala  
                   35                  40                  45

His Ala Arg Tyr Cys Ala Asp Ala Arg Gly Glu Leu Asp Leu Glu Arg  
                   50                  55                  60

Ala Pro Ala Leu Gly Gly Ser Phe Ala Gly Leu Glu Pro Met Gly Leu  
                   65                  70                  75                  80

Leu Trp Ala Leu Glu Pro Glu Lys Pro Phe Trp Arg Phe Leu Lys Arg  
                                   85                  90                  95

Asp Val Gln Ile Pro Phe Val Val Glu Leu Glu Val Leu Asp Gly His  
                   100                  105                  110

Asp Pro Glu Pro Gly Arg Leu Leu Cys Gln Ala Gln His Glu Arg His  
                   115                  120                  125

Phe Leu Pro Pro Gly Val Arg Arg Gln Ser Val Arg Ala Gly Arg Val  
                   130                  135                  140

Arg Ala Thr Leu Phe Leu Pro Pro Gly Glu Pro Gly Pro Phe Pro Gly  
                   145                  150                  155                  160

Ile Ile Asp Ile Phe Gly Ile Gly Gly Gly Leu Leu Glu Tyr Arg Ala  
                                   165                  170                  175

Ser Leu Leu Ala Gly His Gly Phe Ala Thr Leu Ala Leu Ala Tyr Tyr  
                   180                  185                  190

Asn Phe Glu Asp Leu Pro Asn Asn Met Asp Asn Ile Ser Leu Glu Tyr  
                   195                  200                  205

Phe Glu Glu Ala Val Cys Tyr Met Leu Gln His Pro Gln Val Lys Gly  
                   210                  215                  220

Pro Gly Ile Gly Leu Leu Gly Ile Ser Leu Gly Ala Asp Ile Cys Leu  
                   225                  230                  235                  240

Ser Met Ala Ser Phe Leu Lys Asn Val Ser Ala Thr Val Ser Ile Asn  
                                   245                  250                  255

Gly Ser Gly Ile Ser Gly Asn Thr Ala Ile Asn Tyr Lys His Ser Ser  
                   260                  265                  270

Ile Pro Pro Leu Gly Tyr Asp Leu Arg Arg Ile Lys Val Ala Phe Ser  
                   275                  280                  285

Gly Leu Val Asp Ile Val Asp Ile Arg Asn Ala Leu Val Gly Gly Tyr  
                   290                  295                  300

Lys Asn Pro Ser Met Ile Pro Ile Glu Lys Ala Gln Gly Pro Ile Leu  
                   305                  310                  315                  320





agt ggg gtc agc cct gac ttg gcc aac gag gac ggc ctg acg gcc ctg	386
Ser Gly Val Ser Pro Asp Leu Ala Asn Glu Asp Gly Leu Thr Ala Leu	
95 100 105	
cac cag tgc tgc att gat gat ttc cga gag atg gtg cag cag ctc ctg	434
His Gln Cys Cys Ile Asp Asp Phe Arg Glu Met Val Gln Gln Leu Leu	
110 115 120	
gag gct ggg gcc aac atc aat gcc tgt gac agt gag tgc tgg acg cct	482
Glu Ala Gly Ala Asn Ile Asn Ala Cys Asp Ser Glu Cys Trp Thr Pro	
125 130 135 140	
ctg cat gct gcg gcc acc tgc ggc cac ctg cac ctg gtg gag ctg ctc	530
Leu His Ala Ala Thr Cys Gly His Leu His Leu Val Glu Leu Leu	
145 150 155	
atc gcc agt ggc gcc aat ctc ctg gcg gtc aac acc gac ggg aac atg	578
Ile Ala Ser Gly Ala Asn Leu Leu Ala Val Asn Thr Asp Gly Asn Met	
160 165 170	
ccc tat gac ctg tgt gat gat gag cag acg ctg gac tgc ctg gag act	626
Pro Tyr Asp Leu Cys Asp Asp Glu Gln Thr Leu Asp Cys Leu Glu Thr	
175 180 185	
gcc atg gcc gac cgt ggc atc acc cag gac agc atc gag gcc gcc cgg	674
Ala Met Ala Asp Arg Gly Ile Thr Gln Asp Ser Ile Glu Ala Ala Arg	
190 195 200	
gcc gtg cca gaa ctg cgc atg ctg gac gac atc cgg agc cgg ctg cag	722
Ala Val Pro Glu Leu Arg Met Leu Asp Asp Ile Arg Ser Arg Leu Gln	
205 210 215 220	
gcc ggg gca gac ctc cat gcc ccc ctg gac cac ggg gcc acg ctg ctg	770
Ala Gly Ala Asp Leu His Ala Pro Leu Asp His Gly Ala Thr Leu Leu	
225 230 235	
cac gtc gca gcc gcc aac ggg ttc agc gag gcg gct gcc ctg ctg ctg	818
His Val Ala Ala Asn Gly Phe Ser Glu Ala Ala Ala Leu Leu Leu	
240 245 250	
gaa cac cga gcc agc ctg agc gct aag gac caa gac ggc tgg gag ccg	866
Glu His Arg Ala Ser Leu Ser Ala Lys Asp Gln Asp Gly Trp Glu Pro	
255 260 265	
ctg cac gcc gcg gcc tac tgg ggc cag gtg ccc ctg gtg gag ctg ctc	914
Leu His Ala Ala Tyr Trp Gly Gln Val Pro Leu Val Glu Leu Leu	
270 275 280	
gtg gcg cac ggg gcc gac ctg aac gca aag tcc ctg atg gac gag acg	962
Val Ala His Gly Ala Asp Leu Asn Ala Lys Ser Leu Met Asp Glu Thr	
285 290 295 300	
ccc ctt gat gtg tgc ggg gac gag gag gtg cgg gcc aag ctg ctg gag	1010
Pro Leu Asp Val Cys Gly Asp Glu Glu Val Arg Ala Lys Leu Leu Glu	
305 310 315	

ctg aag cac aag cac gac gcc ctc ctg cgc gcc cag agc cgc cag cgc 1058  
 Leu Lys His Lys His Asp Ala Leu Leu Arg Ala Gln Ser Arg Gln Arg  
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 tcc ttg ctg cgc cgc cgc acc tcc agc gcc ggc agc cgc ggg aag gtg 1106  
 Ser Leu Leu Arg Arg Arg Thr Ser Ser Ala Gly Ser Arg Gly Lys Val  
                   335                  340                  345  
  
 gtg agg cgg gat gag cct aac cca gcg cag cgg ctg acg cat gtc cca 1154  
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                   350                  355                  360  
  
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 Glu Ala Ala Arg Pro Ala Gly Glu Asp Val Gly Pro Gly  
                   365                  370                  375  
  
 gccccaggga agaagggtcc tggggagcgt ccccgaagg aggcagccag 1253  
  
  
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<213> Homo sapiens

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                   20                  25                  30  
  
 Gln Val Lys Met Trp Ala Gln Ala Glu Lys Glu Ala Gln Gly Lys Lys  
                   35                  40                  45  
  
 Gly Pro Gly Glu Arg Pro Arg Lys Glu Ala Ala Ser Gln Gly Leu Leu  
                   50                  55                  60  
  
 Lys Gln Val Leu Phe Pro Pro Ser Val Val Leu Leu Glu Ala Ala Ala  
                   65                  70                  75                  80  
  
 Arg Asn Asp Leu Glu Glu Val Arg Gln Phe Leu Gly Ser Gly Val Ser  
                   85                  90                  95  
  
 Pro Asp Leu Ala Asn Glu Asp Gly Leu Thr Ala Leu His Gln Cys Cys  
                   100                  105                  110  
  
 Ile Asp Asp Phe Arg Glu Met Val Gln Gln Leu Leu Glu Ala Gly Ala  
                   115                  120                  125

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Asn Ile Asn Ala Cys Asp Ser Glu Cys Trp Thr Pro Leu His Ala Ala
 130                      135                      140

Ala Thr Cys Gly His Leu His Leu Val Glu Leu Leu Ile Ala Ser Gly
145                      150                      155                      160

Ala Asn Leu Leu Ala Val Asn Thr Asp Gly Asn Met Pro Tyr Asp Leu
                      165                      170                      175

Cys Asp Asp Glu Gln Thr Leu Asp Cys Leu Glu Thr Ala Met Ala Asp
                      180                      185                      190

Arg Gly Ile Thr Gln Asp Ser Ile Glu Ala Ala Arg Ala Val Pro Glu
195                      200                      205

Leu Arg Met Leu Asp Asp Ile Arg Ser Arg Leu Gln Ala Gly Ala Asp
210                      215                      220

Leu His Ala Pro Leu Asp His Gly Ala Thr Leu Leu His Val Ala Ala
225                      230                      235                      240

Ala Asn Gly Phe Ser Glu Ala Ala Ala Leu Leu Leu Glu His Arg Ala
                      245                      250                      255

Ser Leu Ser Ala Lys Asp Gln Asp Gly Trp Glu Pro Leu His Ala Ala
260                      265                      270

Ala Tyr Trp Gly Gln Val Pro Leu Val Glu Leu Leu Val Ala His Gly
275                      280                      285

Ala Asp Leu Asn Ala Lys Ser Leu Met Asp Glu Thr Pro Leu Asp Val
290                      295                      300

Cys Gly Asp Glu Glu Val Arg Ala Lys Leu Leu Glu Leu Lys His Lys
305                      310                      315                      320

His Asp Ala Leu Leu Arg Ala Gln Ser Arg Gln Arg Ser Leu Leu Arg
                      325                      330                      335

Arg Arg Thr Ser Ser Ala Gly Ser Arg Gly Lys Val Val Arg Arg Asp
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Glu Pro Asn Pro Ala Gln Arg Leu Thr His Val Pro Glu Ala Ala Arg
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<222>(44) .. (1598)

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Ala Ala Gly Ala Ala Gly Ser Ala Ala Pro Ala Ala Ala Ala Gly Ala
  5                10                15                20

ccg gga tct ggg ggc gca ccc tca ggg tcg cag ggg gtg ctg atc ggg 151
Pro Gly Ser Gly Gly Ala Pro Ser Gly Ser Gln Gly Val Leu Ile Gly
                25                30                35

gac agg ctg tac tcc ggg gtg ctc atc acc ttg gag aac tgc ctc ctg 199
Asp Arg Leu Tyr Ser Gly Val Leu Ile Thr Leu Glu Asn Cys Leu Leu
                40                45                50

cct gac gac aag ctc cgt ttc acg ccg tcc atg tcg agc ggc ctc gac 247
Pro Asp Asp Lys Leu Arg Phe Thr Pro Ser Met Ser Ser Gly Leu Asp
                55                60                65

acc gac aca gag acc gac ctc cgc gtg gtg ggc tgc gag ctc atc cag 295
Thr Asp Thr Glu Thr Asp Leu Arg Val Val Gly Cys Glu Leu Ile Gln
                70                75                80

gcg gcc ggt atc ctg ctc cgc ctg ccg cag gtg gcc atg gct acc ggg 343
Ala Ala Gly Ile Leu Leu Arg Leu Pro Gln Val Ala Met Ala Thr Gly
  85                90                95                100

cag gtg ttg ttc cag cgg ttc ttt tat acc aag tcc ttc gtg aag cac 391
Gln Val Leu Phe Gln Arg Phe Phe Tyr Thr Lys Ser Phe Val Lys His
                105                110                115

tcc atg gag cat gtg tca atg gcc tgt gtc cac ctg gct tcc aag ata 439
Ser Met Glu His Val Ser Met Ala Cys Val His Leu Ala Ser Lys Ile
                120                125                130

gaa gag gcc cca aga cgc ata cgg gac gtc atc aat gtg ttt cac cgc 487
Glu Glu Ala Pro Arg Arg Ile Arg Asp Val Ile Asn Val Phe His Arg
                135                140                145

ctt cga cag ctg aga gac aaa aag aag ccc gtg cct cta cta ctg gat 535
Leu Arg Gln Leu Arg Asp Lys Lys Lys Pro Val Pro Leu Leu Leu Asp
                150                155                160

caa gat tat gtt aat tta aag aac caa att ata aag gcg gaa aga cga 583
Gln Asp Tyr Val Asn Leu Lys Asn Gln Ile Ile Lys Ala Glu Arg Arg
  165                170                175                180

gtt ctc aaa gag ttg ggt ttc tgc gtc cat gtg aag cat cct cat aag 631
Val Leu Lys Glu Leu Gly Phe Cys Val His Val Lys His Pro His Lys
                185                190                195

ata atc gtt atg tac ctt cag gtg tta gag tgt gag cgt aac caa cac 679
Ile Ile Val Met Tyr Leu Gln Val Leu Glu Cys Glu Arg Asn Gln His
                200                205                210
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ctg gtc cag acc tca tgg aat tac atg aac gac agc ctt cgc acc gac	727
Leu Val Gln Thr Ser Trp Asn Tyr Met Asn Asp Ser Leu Arg Thr Asp	
215 220 225	
gtc ttc gtg cgg ttc cag cca gag agc atc gcc tgt gcc tgc att tat	775
Val Phe Val Arg Phe Gln Pro Glu Ser Ile Ala Cys Ala Cys Ile Tyr	
230 235 240	
ctt gct gcc cgg acg ctg gag atc cct ttg ccc aat cgt ccc cat tgg	823
Leu Ala Ala Arg Thr Leu Glu Ile Pro Leu Pro Asn Arg Pro His Trp	
245 250 255 260	
ttt ctt ttg ttt gga gca act gaa gaa gaa att cag gaa atc tgc tta	871
Phe Leu Leu Phe Gly Ala Thr Glu Glu Glu Ile Gln Glu Ile Cys Leu	
265 270 275	
aag atc ttg cag ctt tat gct cgg aaa aag gtt gat ctc aca cac ctg	919
Lys Ile Leu Gln Leu Tyr Ala Arg Lys Lys Val Asp Leu Thr His Leu	
280 285 290	
gag ggt gaa gtg gaa aaa aga aag cac gct atc gaa gag gca aag gcc	967
Glu Gly Glu Val Glu Lys Arg Lys His Ala Ile Glu Glu Ala Lys Ala	
295 300 305	
caa gcc cgg ggc ctg ttg cct ggg ggc aca cag gtg ctg gat ggt acc	1015
Gln Ala Arg Gly Leu Leu Pro Gly Gly Thr Gln Val Leu Asp Gly Thr	
310 315 320	
tcg ggg ttc tct cct gcc ccc aag ctg gtg gaa tcc ccc aaa gaa ggt	1063
Ser Gly Phe Ser Pro Ala Pro Lys Leu Val Glu Ser Pro Lys Glu Gly	
325 330 335 340	
aaa ggg agc aag cct tcc cca ctg tct gtg aag aac acc aag agg agg	1111
Lys Gly Ser Lys Pro Ser Pro Leu Ser Val Lys Asn Thr Lys Arg Arg	
345 350 355	
ctg gag ggc gcc aag aaa gcc aag gcg gac agc ccc gtg aac ggc ttg	1159
Leu Glu Gly Ala Lys Lys Ala Lys Ala Asp Ser Pro Val Asn Gly Leu	
360 365 370	
cca aag ggg cga gag agt cgg agt cgg agc cgg agc cgt gag cag agc	1207
Pro Lys Gly Arg Glu Ser Arg Ser Arg Ser Arg Ser Arg Glu Gln Ser	
375 380 385	
tac tcg agg tcc cca tcc cga tca gcg tct cct aag agg agg aaa agt	1255
Tyr Ser Arg Ser Pro Ser Arg Ser Ala Ser Pro Lys Arg Arg Lys Ser	
390 395 400	
gac agc ggc tcc aca tct ggt ggg tcc aag tcg cag agc cgc tcc cgg	1303
Asp Ser Gly Ser Thr Ser Gly Gly Ser Lys Ser Gln Ser Arg Ser Arg	
405 410 415 420	
agc agg agt gac tcc cca ccg aga cag gcc ccc cgc agc gct ccc tac	1351
Ser Arg Ser Asp Ser Pro Pro Arg Gln Ala Pro Arg Ser Ala Pro Tyr	
425 430 435	
aaa ggc tct gag att cgg ggc tcc cgg aag tcc aag gac tgc aag tac	1399

Lys Gly Ser Glu Ile Arg Gly Ser Arg Lys Ser Lys Asp Cys Lys Tyr  
 440 445 450  
 ccc cag aag cca cac aag tct cgg agc cgg agt tct tcc cgt tct cga 1447  
 Pro Gln Lys Pro His Lys Ser Arg Ser Arg Ser Ser Ser Arg Ser Arg  
 455 460 465  
 agc agg tca cgg gag cgg gcg gat aat ccg gga aaa tac aag aag aaa 1495  
 Ser Arg Ser Arg Glu Arg Ala Asp Asn Pro Gly Lys Tyr Lys Lys Lys  
 470 475 480  
 agt cat tac tac aga gat cag cga cga gag cgc tcg agg tcg tat gaa 1543  
 Ser His Tyr Tyr Arg Asp Gln Arg Arg Glu Arg Ser Arg Ser Tyr Glu  
 485 490 495 500  
 cgc aca ggc cgt cgc tat gag cgg gac cac cct ggg cac agc agg cat 1591  
 Arg Thr Gly Arg Arg Tyr Glu Arg Asp His Pro Gly His Ser Arg His  
 505 510 515  
 cgg agg tgacacgtgc ttcagaccgg tctgggggtgc ggcgcacacc tgggcccgtg 1647  
 Arg Arg  
 cagggctcag ctcggcagca gctctgaggg cagctcaatg aaaaagtga 1697  
 tgacacagcc cttgttggcg tg 1719

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 Val Leu Ile Gly Asp Arg Leu Tyr Ser Gly Val Leu Ile Thr Leu Glu  
 35 40 45  
 Asn Cys Leu Leu Pro Asp Asp Lys Leu Arg Phe Thr Pro Ser Met Ser  
 50 55 60  
 Ser Gly Leu Asp Thr Asp Thr Glu Thr Asp Leu Arg Val Val Gly Cys  
 65 70 75 80  
 Glu Leu Ile Gln Ala Ala Gly Ile Leu Leu Arg Leu Pro Gln Val Ala  
 85 90 95  
 Met Ala Thr Gly Gln Val Leu Phe Gln Arg Phe Phe Tyr Thr Lys Ser  
 100 105 110

Phe	Val	Lys	His	Ser	Met	Glu	His	Val	Ser	Met	Ala	Cys	Val	His	Leu	115	120	125
Ala	Ser	Lys	Ile	Glu	Glu	Ala	Pro	Arg	Arg	Ile	Arg	Asp	Val	Ile	Asn	130	135	140
Val	Phe	His	Arg	Leu	Arg	Gln	Leu	Arg	Asp	Lys	Lys	Lys	Pro	Val	Pro	145	150	155
Leu	Leu	Leu	Asp	Gln	Asp	Tyr	Val	Asn	Leu	Lys	Asn	Gln	Ile	Ile	Lys	165	170	175
Ala	Glu	Arg	Arg	Val	Leu	Lys	Glu	Leu	Gly	Phe	Cys	Val	His	Val	Lys	180	185	190
His	Pro	His	Lys	Ile	Ile	Val	Met	Tyr	Leu	Gln	Val	Leu	Glu	Cys	Glu	195	200	205
Arg	Asn	Gln	His	Leu	Val	Gln	Thr	Ser	Trp	Asn	Tyr	Met	Asn	Asp	Ser	210	215	220
Leu	Arg	Thr	Asp	Val	Phe	Val	Arg	Phe	Gln	Pro	Glu	Ser	Ile	Ala	Cys	225	230	235
Ala	Cys	Ile	Tyr	Leu	Ala	Ala	Arg	Thr	Leu	Glu	Ile	Pro	Leu	Pro	Asn	245	250	255
Arg	Pro	His	Trp	Phe	Leu	Leu	Phe	Gly	Ala	Thr	Glu	Glu	Glu	Ile	Gln	260	265	270
Glu	Ile	Cys	Leu	Lys	Ile	Leu	Gln	Leu	Tyr	Ala	Arg	Lys	Lys	Val	Asp	275	280	285
Leu	Thr	His	Leu	Glu	Gly	Glu	Val	Glu	Lys	Arg	Lys	His	Ala	Ile	Glu	290	295	300
Glu	Ala	Lys	Ala	Gln	Ala	Arg	Gly	Leu	Leu	Pro	Gly	Gly	Thr	Gln	Val	305	310	315
Leu	Asp	Gly	Thr	Ser	Gly	Phe	Ser	Pro	Ala	Pro	Lys	Leu	Val	Glu	Ser	325	330	335
Pro	Lys	Glu	Gly	Lys	Gly	Ser	Lys	Pro	Ser	Pro	Leu	Ser	Val	Lys	Asn	340	345	350
Thr	Lys	Arg	Arg	Leu	Glu	Gly	Ala	Lys	Lys	Ala	Lys	Ala	Asp	Ser	Pro	355	360	365
Val	Asn	Gly	Leu	Pro	Lys	Gly	Arg	Glu	Ser	Arg	Ser	Arg	Ser	Arg	Ser	370	375	380
Arg	Glu	Gln	Ser	Tyr	Ser	Arg	Ser	Pro	Ser	Arg	Ser	Ala	Ser	Pro	Lys	385	390	395
Arg	Arg	Lys	Ser	Asp	Ser	Gly	Ser	Thr	Ser	Gly	Gly	Ser	Lys	Ser	Gln	405	410	415



Ser Arg Ser Arg Ser Arg Ser Asp Ser Pro Pro Arg Gln Ala Pro Arg  
420 425 430

Ser Ala Pro Tyr Lys Gly Ser Glu Ile Arg Gly Ser Arg Lys Ser Lys  
435 440 445

Asp Cys Lys Tyr Pro Gln Lys Pro His Lys Ser Arg Ser Arg Ser Ser  
450 455 460

Ser Arg Ser Arg Ser Arg Ser Arg Glu Arg Ala Asp Asn Pro Gly Lys  
465 470 475 480

Tyr Lys Lys Lys Ser His Tyr Tyr Arg Asp Gln Arg Arg Glu Arg Ser  
485 490 495

Arg Ser Tyr Glu Arg Thr Gly Arg Arg Tyr Glu Arg Asp His Pro Gly  
500 505 510

His Ser Arg His Arg Arg  
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<222>(28)..(1039)  
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atc gtg ata gcc gag gcg cta cag aac cag cta gcc tgg ctg gag aac 99  
Ile Val Ile Ala Glu Ala Leu Gln Asn Gln Leu Ala Trp Leu Glu Asn  
10 15 20

gtg tgg ctc tgg atc acc ttt ctg ggc gat ccc aag atc ctc ttt ctg 147  
Val Trp Leu Trp Ile Thr Phe Leu Gly Asp Pro Lys Ile Leu Phe Leu  
25 30 35 40

ttc tac ttc ccc gcg gcc tac tac gcc tcc cgc cgt gtg ggc atc gcg 195  
Phe Tyr Phe Pro Ala Ala Tyr Tyr Ala Ser Arg Arg Val Gly Ile Ala  
45 50 55

gtg ctc tgg atc agc ctc atc acc gag tgg ctc aac ctc atc ttc aag 243  
Val Leu Trp Ile Ser Leu Ile Thr Glu Trp Leu Asn Leu Ile Phe Lys  
60 65 70

tgg ttt ctt ttt gga gac agg ccc ttt tgg tgg gtc cat gag tct ggt 291  
Trp Phe Leu Phe Gly Asp Arg Pro Phe Trp Trp Val His Glu Ser Gly  
75 80 85

tac tac agc cag gct cca gcc cag gtt cac cag ttc ccc tct tct tgt 339  
Tyr Tyr Ser Gln Ala Pro Ala Gln Val His Gln Phe Pro Ser Ser Cys

90	95	100	
gag act ggt cca ggt ggc agc cct tct gga cac tgc atg atc aca gga			387
Glu Thr Gly Pro Gly Gly Ser Pro Ser Gly His Cys Met Ile Thr Gly			
105	110	115	120
gca gcc ctc tgg ccc ata atg acg gcc ctg tct tgc cag gtg cgc tgg			435
Ala Ala Leu Trp Pro Ile Met Thr Ala Leu Ser Ser Gln Val Arg Trp			
	125	130	135
gta agg gtg atg cct agc ctg gct tat tgc acc ttc ctt ttg gcg gtt			483
Val Arg Val Met Pro Ser Leu Ala Tyr Cys Thr Phe Leu Leu Ala Val			
	140	145	150
ggc ttg tgc cga atc ttc atc tta gca cat ttc cct cac cag gtg ctg			531
Gly Leu Ser Arg Ile Phe Ile Leu Ala His Phe Pro His Gln Val Leu			
	155	160	165
gct ggc cta ata act ggt tgg ctg atg act ccc cga gtg cct atg gag			579
Ala Gly Leu Ile Thr Gly Trp Leu Met Thr Pro Arg Val Pro Met Glu			
	170	175	180
cgg gag cta agc ttc tat ggg ttg act gca ctg gcc ctc atg cta ggc			627
Arg Glu Leu Ser Phe Tyr Gly Leu Thr Ala Leu Ala Leu Met Leu Gly			
	185	190	200
acc agc ctc atc tat tgg acc ctc ttt aca ctg ggc ctg gat ctt tct			675
Thr Ser Leu Ile Tyr Trp Thr Leu Phe Thr Leu Gly Leu Asp Leu Ser			
	205	210	215
tgg tcc atc agc cta gcc ttc aag tgg tgt gag cgg cct gag tgg ata			723
Trp Ser Ile Ser Leu Ala Phe Lys Trp Cys Glu Arg Pro Glu Trp Ile			
	220	225	230
cac gtg gat agc cgg ccc ttt gcc tcc ctg agc cgt gac tca ggg gct			771
His Val Asp Ser Arg Pro Phe Ala Ser Leu Ser Arg Asp Ser Gly Ala			
	235	240	245
gcc ctg ggc ctg ggc att gcc ttg cac tct ccc tgc tat gcc cag gtg			819
Ala Leu Gly Leu Gly Ile Ala Leu His Ser Pro Cys Tyr Ala Gln Val			
	250	255	260
cgt cgg gca cag ctg gga aat ggc cag aag ata gcc tgc ctt gtg ctg			867
Arg Arg Ala Gln Leu Gly Asn Gly Gln Lys Ile Ala Cys Leu Val Leu			
	265	270	275
gcc atg ggg ctg ctg ggc ccc ctg gac tgg ctg ggc cac ccc cct cag			915
Ala Met Gly Leu Leu Gly Pro Leu Asp Trp Leu Gly His Pro Pro Gln			
	285	290	295
atc agc ctc ttc tac att ttc aat ttc ctc aag tac acc ctc tgg cca			963
Ile Ser Leu Phe Tyr Ile Phe Asn Phe Leu Lys Tyr Thr Leu Trp Pro			
	300	305	310
tgc cta gtc ctg gcc ctc gtg ccc tgg gca gtg cac atg ttc agt gcc			1011
Cys Leu Val Leu Ala Leu Val Pro Trp Ala Val His Met Phe Ser Ala			
	315	320	325

cag gaa gca ccg ccc atc cac tct tcc tgacttcttg tgtgcctccc 1058  
 Gln Glu Ala Pro Pro Ile His Ser Ser  
 330 335

tttcctttcc c 1069

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 20 25 30  
 Gly Asp Pro Lys Ile Leu Phe Leu Phe Tyr Phe Pro Ala Ala Tyr Tyr  
 35 40 45  
 Ala Ser Arg Arg Val Gly Ile Ala Val Leu Trp Ile Ser Leu Ile Thr  
 50 55 60  
 Glu Trp Leu Asn Leu Ile Phe Lys Trp Phe Leu Phe Gly Asp Arg Pro  
 65 70 75 80  
 Phe Trp Trp Val His Glu Ser Gly Tyr Tyr Ser Gln Ala Pro Ala Gln  
 85 90 95  
 Val His Gln Phe Pro Ser Ser Cys Glu Thr Gly Pro Gly Gly Ser Pro  
 100 105 110  
 Ser Gly His Cys Met Ile Thr Gly Ala Ala Leu Trp Pro Ile Met Thr  
 115 120 125  
 Ala Leu Ser Ser Gln Val Arg Trp Val Arg Val Met Pro Ser Leu Ala  
 130 135 140  
 Tyr Cys Thr Phe Leu Leu Ala Val Gly Leu Ser Arg Ile Phe Ile Leu  
 145 150 155 160  
 Ala His Phe Pro His Gln Val Leu Ala Gly Leu Ile Thr Gly Trp Leu  
 165 170 175  
 Met Thr Pro Arg Val Pro Met Glu Arg Glu Leu Ser Phe Tyr Gly Leu  
 180 185 190  
 Thr Ala Leu Ala Leu Met Leu Gly Thr Ser Leu Ile Tyr Trp Thr Leu  
 195 200 205  
 Phe Thr Leu Gly Leu Asp Leu Ser Trp Ser Ile Ser Leu Ala Phe Lys  
 210 215 220

Trp Cys Glu Arg Pro Glu Trp Ile His Val Asp Ser Arg Pro Phe Ala  
 225 230 235 240  
 Ser Leu Ser Arg Asp Ser Gly Ala Ala Leu Gly Leu Gly Ile Ala Leu  
 245 250 255  
 His Ser Pro Cys Tyr Ala Gln Val Arg Arg Ala Gln Leu Gly Asn Gly  
 260 265 270  
 Gln Lys Ile Ala Cys Leu Val Leu Ala Met Gly Leu Leu Gly Pro Leu  
 275 280 285  
 Asp Trp Leu Gly His Pro Pro Gln Ile Ser Leu Phe Tyr Ile Phe Asn  
 290 295 300  
 Phe Leu Lys Tyr Thr Leu Trp Pro Cys Leu Val Leu Ala Leu Val Pro  
 305 310 315 320  
 Trp Ala Val His Met Phe Ser Ala Gln Glu Ala Pro Pro Ile His Ser  
 325 330 335

Ser

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 Met Glu Ser Thr Leu Gly Ala Gly Ile Val Ile Ala Glu Ala  
 5 10

cta cag aac cag cta gcc tgg ctg gag aac gtg tgg ctc tgg atc acc 147  
 Leu Gln Asn Gln Leu Ala Trp Leu Glu Asn Val Trp Leu Trp Ile Thr  
 15 20 25 30

ttt ctg ggc gat ccc aag atc ctc ttt ctg ttc tac ttc ccc gcg gcc 195  
 Phe Leu Gly Asp Pro Lys Ile Leu Phe Leu Phe Tyr Phe Pro Ala Ala  
 35 40 45

tac tac gcc tcc cgc cgt gtg ggc atc gcg gtg ctc tgg atc agc ctc 243  
 Tyr Tyr Ala Ser Arg Arg Val Gly Ile Ala Val Leu Trp Ile Ser Leu  
 50 55 60

atc acc gag tgg ctc aac ctc atc ttc aag tgg ttt ctt ttt gga gac 291  
 Ile Thr Glu Trp Leu Asn Leu Ile Phe Lys Trp Phe Leu Phe Gly Asp  
 65 70 75

agg ccc ttt tgg tgg gtc cat gag tct ggt tac tac agc cag gct cca 339  
 Arg Pro Phe Trp Trp Val His Glu Ser Gly Tyr Ser Gln Ala Pro  
 80 85 90

gcc cag gtt cac cag ttc ccc tct tct tgt gag act ggt cca ggc agc 387  
 Ala Gln Val His Gln Phe Pro Ser Ser Cys Glu Thr Gly Pro Gly Ser  
 95 100 105 110

cct tct gga cac tgc atg atc aca gga gca gcc ctc tgg ccc ata atg 435  
 Pro Ser Gly His Cys Met Ile Thr Gly Ala Ala Leu Trp Pro Ile Met  
 115 120 125

acg gcc ctg tct tgc cag gtg gcc act cgg gcc cgc agc cgc tgg gta 483  
 Thr Ala Leu Ser Ser Gln Val Ala Thr Arg Ala Arg Ser Arg Trp Val  
 130 135 140

agg gtg atg cct agc ctg gct tat tgc acc ttc ctt ttg gcg gtt ggc 531  
 Arg Val Met Pro Ser Leu Ala Tyr Cys Thr Phe Leu Leu Ala Val Gly  
 145 150 155

ttg tgc cga atc ttc atc tta gca cat ttc cct cac cag gtg ctg gct 579  
 Leu Ser Arg Ile Phe Ile Leu Ala His Phe Pro His Gln Val Leu Ala  
 160 165 170

ggc cta ata act ggc gct gtc ctg ggc tgg ctg atg act ccc cga gtg 627  
 Gly Leu Ile Thr Gly Ala Val Leu Gly Trp Leu Met Thr Pro Arg Val  
 175 180 185 190

cct atg gag cgg gag cta agc ttc tat ggg ttg act gca ctg gcc ctc 675  
 Pro Met Glu Arg Glu Leu Ser Phe Tyr Gly Leu Thr Ala Leu Ala Leu  
 195 200 205

atg cta ggc acc agc ctc atc tat tgg acc ctc ttt aca ctg ggc ctg 723  
 Met Leu Gly Thr Ser Leu Ile Tyr Trp Thr Leu Phe Thr Leu Gly Leu  
 210 215 220

gat ctt tct tgg tcc atc agc cta gcc ttc aag tgg tgt gag cgg cct 771  
 Asp Leu Ser Trp Ser Ile Ser Leu Ala Phe Lys Trp Cys Glu Arg Pro  
 225 230 235

gag tgg ata cac gtg gat agc cgg ccc ttt gcc tcc ctg agc cgt gac 819  
 Glu Trp Ile His Val Asp Ser Arg Pro Phe Ala Ser Leu Ser Arg Asp  
 240 245 250

tca ggg gct gcc ctg ggc ctg ggc att gcc ttg cac tct ccc tgc tat 867  
 Ser Gly Ala Ala Leu Gly Leu Gly Ile Ala Leu His Ser Pro Cys Tyr  
 255 260 265 270

gcc cag gtg cgt cgg gca cag ctg gga aat ggc cag aag ata gcc tgc 915  
 Ala Gln Val Arg Arg Ala Gln Leu Gly Asn Gly Gln Lys Ile Ala Cys  
 275 280 285

ctt gtg ctg gcc atg ggg ctg ctg ggc ccc ctg gac tgg ctg ggc cac 963  
 Leu Val Leu Ala Met Gly Leu Leu Gly Pro Leu Asp Trp Leu Gly His  
 290 295 300

ccc cct cag atc agc ctc ttc tac att ttc aat ttc ctc aag tac acc 1011

Pro Pro Gln Ile Ser Leu Phe Tyr Ile Phe Asn Phe Leu Lys Tyr Thr  
305 310 315

ctc tgg cca tgc cca gtc ctg gcc ctc gtg ccc tgg gca gtg cac atg 1059  
Leu Trp Pro Cys Pro Val Leu Ala Leu Val Pro Trp Ala Val His Met  
320 325 330

ttc agt gcc cag gaa gca ccg ccc atc cac tct tcc tgacttcttg 1105  
Phe Ser Ala Gln Glu Ala Pro Pro Ile His Ser Ser  
335 340 345

tgtgcctccc tttcctttcc ctcccacaaa gccaacactc tgtgaccacc 1155

acactccagg aggcagcccc atcccccttc agcccctaag taggcctcc 1205

cctccctaaa tctgcttccg caccacctgg tcttagcccc aaagatgggc 1255

cttctctctc ccagataagt tggtcctccc tctgccttcc ctctcaagcc 1305

cccaaagagc aaaggcaaca gcaagaccag cgggttcttg caacactgtg 1355

aggggcagcc agggcggaaa gtacagactc a 1386

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<212>PRT  
<213> Homo sapiens

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Asn Gln Leu Ala Trp Leu Glu Asn Val Trp Leu Trp Ile Thr Phe Leu  
20 25 30

Gly Asp Pro Lys Ile Leu Phe Leu Phe Tyr Phe Pro Ala Ala Tyr Tyr  
35 40 45

Ala Ser Arg Arg Val Gly Ile Ala Val Leu Trp Ile Ser Leu Ile Thr  
50 55 60

Glu Trp Leu Asn Leu Ile Phe Lys Trp Phe Leu Phe Gly Asp Arg Pro  
65 70 75 80

Phe Trp Trp Val His Glu Ser Gly Tyr Tyr Ser Gln Ala Pro Ala Gln

85										90					95				
Val	His	Gln	Phe	Pro	Ser	Ser	Cys	Glu	Thr	Gly	Pro	Gly	Ser	Pro	Ser				
			100					105					110						
Gly	His	Cys	Met	Ile	Thr	Gly	Ala	Ala	Leu	Trp	Pro	Ile	Met	Thr	Ala				
		115					120					125							
Leu	Ser	Ser	Gln	Val	Ala	Thr	Arg	Ala	Arg	Ser	Arg	Trp	Val	Arg	Val				
	130					135					140								
Met	Pro	Ser	Leu	Ala	Tyr	Cys	Thr	Phe	Leu	Leu	Ala	Val	Gly	Leu	Ser				
145					150					155					160				
Arg	Ile	Phe	Ile	Leu	Ala	His	Phe	Pro	His	Gln	Val	Leu	Ala	Gly	Leu				
			165						170					175					
Ile	Thr	Gly	Ala	Val	Leu	Gly	Trp	Leu	Met	Thr	Pro	Arg	Val	Pro	Met				
		180					185						190						
Glu	Arg	Glu	Leu	Ser	Phe	Tyr	Gly	Leu	Thr	Ala	Leu	Ala	Leu	Met	Leu				
	195						200					205							
Gly	Thr	Ser	Leu	Ile	Tyr	Trp	Thr	Leu	Phe	Thr	Leu	Gly	Leu	Asp	Leu				
	210				215						220								
Ser	Trp	Ser	Ile	Ser	Leu	Ala	Phe	Lys	Trp	Cys	Glu	Arg	Pro	Glu	Trp				
225				230					235					240					
Ile	His	Val	Asp	Ser	Arg	Pro	Phe	Ala	Ser	Leu	Ser	Arg	Asp	Ser	Gly				
		245						250					255						
Ala	Ala	Leu	Gly	Leu	Gly	Ile	Ala	Leu	His	Ser	Pro	Cys	Tyr	Ala	Gln				
		260					265						270						
Val	Arg	Arg	Ala	Gln	Leu	Gly	Asn	Gly	Gln	Lys	Ile	Ala	Cys	Leu	Val				
	275					280						285							
Leu	Ala	Met	Gly	Leu	Leu	Gly	Pro	Leu	Asp	Trp	Leu	Gly	His	Pro	Pro				
	290				295					300									
Gln	Ile	Ser	Leu	Phe	Tyr	Ile	Phe	Asn	Phe	Leu	Lys	Tyr	Thr	Leu	Trp				
305				310					315					320					
Pro	Cys	Pro	Val	Leu	Ala	Leu	Val	Pro	Trp	Ala	Val	His	Met	Phe	Ser				
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Ala	Gln	Glu	Ala	Pro	Pro	Ile	His	Ser	Ser										
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<220>  
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<222>(1) .. (1543)

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Asp Leu Val Ala Phe Ala Asn Ser Cys Thr Leu His Gly Thr Asn His	
20 25 30	
att ttt gtg gag ggg ggt cca ggg cca agg cag gtg ctg tgg gcg gtg	144
Ile Phe Val Glu Gly Gly Pro Gly Pro Arg Gln Val Leu Trp Ala Val	
35 40 45	
gcc ttt gtc ctg gca ctg ggt gcc ttc ctg tgc cag gta ggg gac cgc	192
Ala Phe Val Leu Ala Leu Gly Ala Phe Leu Cys Gln Val Gly Asp Arg	
50 55 60	
gtt gct tat tac ctc agc tac cca cac gtg acc ctt cta aac gaa gtg	240
Val Ala Tyr Tyr Leu Ser Tyr Pro His Val Thr Leu Leu Asn Glu Val	
65 70 75 80	
gcc acc acg gag ctg gcc ttc ccg gca gtc acc ctc tgc aac act aat	288
Ala Thr Thr Glu Leu Ala Phe Pro Ala Val Thr Leu Cys Asn Thr Asn	
85 90 95	
gct gtg cgg ctg tcc cag ctc agc tac cct gac ttg ctt tat ttg gcc	336
Ala Val Arg Leu Ser Gln Leu Ser Tyr Pro Asp Leu Leu Tyr Leu Ala	
100 105 110	
ccc atg ctg gga ctg gat gaa agt gat gac ccc ggg gtg ccc ctc gct	384
Pro Met Leu Gly Leu Asp Glu Ser Asp Asp Pro Gly Val Pro Leu Ala	
115 120 125	
cca ccg ggc cct gag gcc ttc tct ggg gag ccc ttt aac ctg cac cgc	432
Pro Pro Gly Pro Glu Ala Phe Ser Gly Glu Pro Phe Asn Leu His Arg	
130 135 140	
ttc tac aat cgc tcc tgc cac cgg ctg gag gac atg ctg ctc tat tgc	480
Phe Tyr Asn Arg Ser Cys His Arg Leu Glu Asp Met Leu Leu Tyr Cys	
145 150 155 160	
tcc tac caa ggg gga ccc tgc ggc cct cac aac ttc tca gtg gtg ttc	528
Ser Tyr Gln Gly Gly Pro Cys Gly Pro His Asn Phe Ser Val Val Phe	
165 170 175	
aca cgc tat gga aag tgc tac acg ttc aac tcg ggc cga gat ggg cgg	576
Thr Arg Tyr Gly Lys Cys Tyr Thr Phe Asn Ser Gly Arg Asp Gly Arg	
180 185 190	
ccg cgg ctg aag acc atg aag ggt ggg acg ggc aat ggg ctg gaa atc	624
Pro Arg Leu Lys Thr Met Lys Gly Gly Thr Gly Asn Gly Leu Glu Ile	
195 200 205	
atg ctg gac atc cag cag gac gag tac ctg cct gtg tgg ggg gag act	672
Met Leu Asp Ile Gln Gln Asp Glu Tyr Leu Pro Val Trp Gly Glu Thr	
210 215 220	





cac aag ctg tgc cga cga gga aaa tgc cag aag gag gcc aaa agg agc 1392  
 His Lys Leu Cys Arg Arg Gly Lys Cys Gln Lys Glu Ala Lys Arg Ser  
 450 455 460  
 agt gcg gac aag ggc gtg gcc ctc agc ctg gac gac gtc aaa aga cac 1440  
 Ser Ala Asp Lys Gly Val Ala Leu Ser Leu Asp Asp Val Lys Arg His  
 465 470 475 480  
 aac ccg tgc gag agc ctt cgg ggc cac cct gcc ggg atg aca tac gct 1488  
 Asn Pro Cys Glu Ser Leu Arg Gly His Pro Ala Gly Met Thr Tyr Ala  
 485 490 495  
 gcc aac atc cta cct cac cat ccg gcc cga ggc acg ttc gag gac ttt 1536  
 Ala Asn Ile Leu Pro His His Pro Ala Arg Gly Thr Phe Glu Asp Phe  
 500 505 510  
 acc tgc tgagccccgc aggccgctga accaaaggcc tagatgggga ggactaggag 1592  
 Thr Cys

agcgaggggg cccccagctg cctcctcaca tc 1624

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 <212>PRT  
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 Ile Phe Val Glu Gly Gly Pro Gly Pro Arg Gln Val Leu Trp Ala Val  
 35 40 45  
 Ala Phe Val Leu Ala Leu Gly Ala Phe Leu Cys Gln Val Gly Asp Arg  
 50 55 60  
 Val Ala Tyr Tyr Leu Ser Tyr Pro His Val Thr Leu Leu Asn Glu Val  
 65 70 75 80  
 Ala Thr Thr Glu Leu Ala Phe Pro Ala Val Thr Leu Cys Asn Thr Asn  
 85 90 95  
 Ala Val Arg Leu Ser Gln Leu Ser Tyr Pro Asp Leu Leu Tyr Leu Ala  
 100 105 110  
 Pro Met Leu Gly Leu Asp Glu Ser Asp Asp Pro Gly Val Pro Leu Ala  
 115 120 125  
 Pro Pro Gly Pro Glu Ala Phe Ser Gly Glu Pro Phe Asn Leu His Arg  
 130 135 140

Phe Tyr Asn Arg Ser Cys His Arg Leu Glu Asp Met Leu Leu Tyr Cys  
145 150 155 160  
Ser Tyr Gln Gly Gly Pro Cys Gly Pro His Asn Phe Ser Val Val Phe  
165 170 175  
Thr Arg Tyr Gly Lys Cys Tyr Thr Phe Asn Ser Gly Arg Asp Gly Arg  
180 185 190  
Pro Arg Leu Lys Thr Met Lys Gly Gly Thr Gly Asn Gly Leu Glu Ile  
195 200 205  
Met Leu Asp Ile Gln Gln Asp Glu Tyr Leu Pro Val Trp Gly Glu Thr  
210 215 220  
Asp Glu Thr Ser Phe Glu Ala Gly Ile Lys Val Gln Ile His Ser Gln  
225 230 235 240  
Asp Glu Pro Pro Phe Ile Asp Gln Leu Gly Phe Gly Val Ala Pro Gly  
245 250 255  
Phe Gln Thr Phe Val Ala Cys Gln Glu Gln Arg Ile Tyr Leu Pro Pro  
260 265 270  
Pro Trp Gly Thr Cys Lys Ala Val Thr Met Asp Ser Asp Phe Phe Asp  
275 280 285  
Ser Tyr Ser Ile Thr Ala Cys Arg Ile Asp Cys Glu Thr Arg Tyr Leu  
290 295 300  
Val Glu Asn Cys Asn Cys Arg Met Val His Met Pro Gly Asp Ala Pro  
305 310 315 320  
Tyr Cys Thr Pro Glu Gln Tyr Lys Glu Cys Ala Asp Pro Ala Leu Asp  
325 330 335  
Phe Leu Val Glu Lys Asp Gln Glu Tyr Cys Val Cys Glu Met Pro Cys  
340 345 350  
Asn Leu Thr Arg Tyr Gly Lys Glu Leu Ser Met Val Lys Ile Pro Ser  
355 360 365  
Lys Ala Ser Ala Lys Tyr Leu Ala Lys Lys Phe Asn Lys Ser Glu Gln  
370 375 380  
Tyr Ile Gly Glu Asn Ile Leu Val Leu Asp Ile Phe Phe Glu Val Leu  
385 390 395 400  
Asn Tyr Glu Thr Ile Glu Gln Lys Lys Ala Tyr Glu Ile Ala Gly Leu  
405 410 415  
Leu Gly Asp Ile Gly Gly Gln Met Gly Leu Phe Ile Gly Ala Ser Ile  
420 425 430  
Leu Thr Val Leu Glu Leu Phe Asp Tyr Ala Tyr Glu Val Ile Lys  
435 440 445

His Lys Leu Cys Arg Arg Gly Lys Cys Gln Lys Glu Ala Lys Arg Ser  
450 455 460

Ser Ala Asp Lys Gly Val Ala Leu Ser Leu Asp Asp Val Lys Arg His  
465 470 475 480

Asn Pro Cys Glu Ser Leu Arg Gly His Pro Ala Gly Met Thr Tyr Ala  
485 490 495

Ala Asn Ile Leu Pro His His Pro Ala Arg Gly Thr Phe Glu Asp Phe  
500 505 510

Thr Cys

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<211>1949  
<212>DNA  
<213> Homo sapiens

<220>  
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<222>(10)..(1450)  
<400>105

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ccc tgg agg ggc tac tgc tcc cag tcc ctg cag gga gag ctc tgc agg	96
Pro Trp Arg Gly Tyr Cys Ser Gln Ser Leu Gln Gly Glu Leu Cys Arg	
15 20 25	
gac ttc gta gag gct ctg aag gcc gtg gtg ggc ggc tcc cac gtg tcc	144
Asp Phe Val Glu Ala Leu Lys Ala Val Val Gly Gly Ser His Val Ser	
30 35 40 45	
act gcc gcg gtg gtc cga gag cag cac ggg cgc gat gag tcg gtg cac	192
Thr Ala Ala Val Val Arg Glu Gln His Gly Arg Asp Glu Ser Val His	
50 55 60	
agg tgc gaa cct cct gat gct gtg gtg tgg ccc cag aac gtg gag cag	240
Arg Cys Glu Pro Pro Asp Ala Val Val Trp Pro Gln Asn Val Glu Gln	
65 70 75	
gtc agc cgg ctg gca gcc ctg tgc tat cgc caa ggt gtg ccc atc atc	288
Val Ser Arg Leu Ala Ala Leu Cys Tyr Arg Gln Gly Val Pro Ile Ile	
80 85 90	
cca ttc ggc acc ggc acc ggg ctt gag ggt ggc gtc tgt gct gtg cag	336
Pro Phe Gly Thr Gly Thr Gly Leu Glu Gly Gly Val Cys Ala Val Gln	
95 100 105	
ggc ggc gtc tgc gtt aac ctg acg cat atg gac cga atc ctg gag ctg	384
Gly Gly Val Cys Val Asn Leu Thr His Met Asp Arg Ile Leu Glu Leu	
110 115 120 125	
aac cag gag gac ttc tct gtg gtg gtg gag cca ggt gtc acc cgc aaa	432

Asn	Gln	Glu	Asp	Phe	Ser	Val	Val	Val	Glu	Pro	Gly	Val	Thr	Arg	Lys	
				130					135					140		
gcc	ctc	aac	gcc	cac	ctg	cgg	gac	agc	ggc	ctc	tgg	ttt	cct	cca	gac	480
Ala	Leu	Asn	Ala	His	Leu	Arg	Asp	Ser	Gly	Leu	Trp	Phe	Pro	Pro	Asp	
			145				150					155				
cca	ggc	gcg	gac	gcc	tct	ctc	tgt	ggc	atg	gcg	gcc	acc	ggg	gcg	tcg	528
Pro	Gly	Ala	Asp	Ala	Ser	Leu	Cys	Gly	Met	Ala	Ala	Thr	Gly	Ala	Ser	
		160					165					170				
ggg	acc	aac	gcg	gtc	cgc	tac	ggc	acc	atg	cgg	gac	aac	gtg	ctc	aac	576
Gly	Thr	Asn	Ala	Val	Arg	Tyr	Gly	Thr	Met	Arg	Asp	Asn	Val	Leu	Asn	
	175				180						185					
ctg	gag	gtg	gtg	ctg	ccc	gac	ggg	cgg	ctg	ctg	cac	acg	gcg	ggc	cga	624
Leu	Glu	Val	Val	Leu	Pro	Asp	Gly	Arg	Leu	Leu	His	Thr	Ala	Gly	Arg	
190					195				200					205		
ggc	ctc	atc	aca	gat	tcc	act	gct	gca	ttc	ccc	cac	atc	agc	ccc	act	672
Gly	Leu	Ile	Thr	Asp	Ser	Thr	Ala	Ala	Phe	Pro	His	Ile	Ser	Pro	Thr	
			210					215					220			
gag	tgc	ttt	tcc	cag	ggg	cca	ggg	cct	cat	gtc	aat	tct	cct	cac	cct	720
Glu	Cys	Phe	Ser	Gln	Gly	Pro	Gly	Pro	His	Val	Asn	Ser	Pro	His	Pro	
			225				230					235				
gcc	cct	gag	gcc	aca	gtg	gcc	gcc	acg	tgt	gcg	ttc	ccc	agt	gtc	cag	768
Ala	Pro	Glu	Ala	Thr	Val	Ala	Ala	Thr	Cys	Ala	Phe	Pro	Ser	Val	Gln	
		240				245					250					
gct	gct	gtg	gac	agc	act	gta	cac	atc	ctc	cag	gct	gca	gtg	ccc	gta	816
Ala	Ala	Val	Asp	Ser	Thr	Val	His	Ile	Leu	Gln	Ala	Ala	Val	Pro	Val	
	255					260				265						
gcc	cgc	att	gag	ttc	ctg	gat	gaa	gtc	atg	atg	gat	gcc	tgc	aac	agg	864
Ala	Arg	Ile	Glu	Phe	Leu	Asp	Glu	Val	Met	Met	Asp	Ala	Cys	Asn	Arg	
270					275				280					285		
tac	agc	aag	ctg	aat	tgc	tta	gtg	gcg	ccc	aca	ctc	ttc	ctg	gag	ttc	912
Tyr	Ser	Lys	Leu	Asn	Cys	Leu	Val	Ala	Pro	Thr	Leu	Phe	Leu	Glu	Phe	
			290					295				300				
cat	ggc	tcc	cag	cag	gca	ctg	gag	gag	cag	ctg	cag	cgc	aca	gag	gag	960
His	Gly	Ser	Gln	Gln	Ala	Leu	Glu	Glu	Gln	Leu	Gln	Arg	Thr	Glu	Glu	
		305					310					315				
ata	gtc	cag	cag	aac	gga	gcc	tct	gac	ttc	tcc	tgg	gcc	aag	gag	gcc	1008
Ile	Val	Gln	Gln	Asn	Gly	Ala	Ser	Asp	Phe	Ser	Trp	Ala	Lys	Glu	Ala	
		320				325						330				
gag	gag	cgc	agc	cgg	ctt	tgg	aca	gca	cgg	cac	aat	gcc	tgg	tac	gca	1056
Glu	Glu	Arg	Ser	Arg	Leu	Trp	Thr	Ala	Arg	His	Asn	Ala	Trp	Tyr	Ala	
	335				340					345						
gcc	ctg	gcc	acg	cgg	cca	ggc	tgc	aag	ggc	tac	tcc	acg	gat	gtg	tgt	1104
Ala	Leu	Ala	Thr	Arg	Pro	Gly	Cys	Lys	Gly	Tyr	Ser	Thr	Asp	Val	Cys	

350	355	360	365	
gtg ccc atc tcc cgg ctg ccg gag atc	gtg gtg cag acc aag gag gat	1152		
Val Pro Ile Ser Arg Leu Pro Glu Ile	Val Val Gln Thr Lys Glu Asp			
370	375	380		
ctg aat gcc tca gga ctc aca gga agc att gtc ggg cat gtg ggt gac	1200			
Leu Asn Ala Ser Gly Leu Thr Gly Ser Ile Val Gly His Val Gly Asp				
385	390	395		
ggc aac ttc cac tgc atc ctg ctg gtc aac cct gat gac gcc gag gaa	1248			
Gly Asn Phe His Cys Ile Leu Leu Val Asn Pro Asp Asp Ala Glu Glu				
400	405	410		
ctg ggc agg gtc aag gct ttt gca gaa cag ctg ggc agg cgg gca ctg	1296			
Leu Gly Arg Val Lys Ala Phe Ala Glu Gln Leu Gly Arg Arg Ala Leu				
415	420	425		
gct ctc cac gga acg tgc acg ggg gag cat ggc atc gga atg ggc aag	1344			
Ala Leu His Gly Thr Cys Thr Gly Glu His Gly Ile Gly Met Gly Lys				
430	435	440	445	
cgg cag ctg ctg cag gag gag gtg ggc gcc gtg ggc gtg gag acc atg	1392			
Arg Gln Leu Leu Gln Glu Glu Val Gly Ala Val Gly Val Glu Thr Met				
450	455	460		
cgg cag ctc aag gcc gtg cta gac ccc caa ggc ctc atg aat cca ggc	1440			
Arg Gln Leu Lys Ala Val Leu Asp Pro Gln Gly Leu Met Asn Pro Gly				
465	470	475		
aaa gtg ctg tgaaggggt ctgagcactt agcccacaag ttccctgact	1489			
Lys Val Leu				
480				
acggagccgg ttctggaact tttcttcatt ccacggcccc tgcaaggaaa	1539			
tagatgctga ggcagtcttc ctgccagcga gccactgta tctgggcccc	1589			
aggccagagg gccagagag aagcctgagc accgtgttac ctccctggcc	1639			
ctctggctgg cccagagagc ctttggttca gtaaacgacc cagggtggtt	1689			
cccagcaaag ctgcttcctc tctgctccta cgcatacctgt cctggcgagg	1739			
agagagcgtc tgggtccatt caagactctg atgacacccc tccccgaggc	1789			

ctcccactgc cgggggtccca ggacccttcc cccttcacct ggtgacagga 1839

acactccttt cctgggtatgg aacgtgagct cccgtgacat gatgataggt 1889

cttctccttg gggcctcccc caataaatct gtaataaacc tgaaaccac 1939

ctacagctaa 1949

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<212>PRT  
<213> Homo sapiens

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Glu Ala Leu Lys Ala Val Val Gly Gly Ser His Val Ser Thr Ala Ala  
35 40 45  
Val Val Arg Glu Gln His Gly Arg Asp Glu Ser Val His Arg Cys Glu  
50 55 60  
Pro Pro Asp Ala Val Val Trp Pro Gln Asn Val Glu Gln Val Ser Arg  
65 70 75 80  
Leu Ala Ala Leu Cys Tyr Arg Gln Gly Val Pro Ile Ile Pro Phe Gly  
85 90 95  
Thr Gly Thr Gly Leu Glu Gly Gly Val Cys Ala Val Gln Gly Gly Val  
100 105 110  
Cys Val Asn Leu Thr His Met Asp Arg Ile Leu Glu Leu Asn Gln Glu  
115 120 125  
Asp Phe Ser Val Val Val Glu Pro Gly Val Thr Arg Lys Ala Leu Asn  
130 135 140  
Ala His Leu Arg Asp Ser Gly Leu Trp Phe Pro Pro Asp Pro Gly Ala  
145 150 155 160  
Asp Ala Ser Leu Cys Gly Met Ala Ala Thr Gly Ala Ser Gly Thr Asn  
165 170 175  
Ala Val Arg Tyr Gly Thr Met Arg Asp Asn Val Leu Asn Leu Glu Val

180					185					190					
Val	Leu	Pro	Asp	Gly	Arg	Leu	Leu	His	Thr	Ala	Gly	Arg	Gly	Leu	Ile
	195					200					205				
Thr	Asp	Ser	Thr	Ala	Ala	Phe	Pro	His	Ile	Ser	Pro	Thr	Glu	Cys	Phe
	210					215					220				
Ser	Gln	Gly	Pro	Gly	Pro	His	Val	Asn	Ser	Pro	His	Pro	Ala	Pro	Glu
	225					230					235				240
Ala	Thr	Val	Ala	Ala	Thr	Cys	Ala	Phe	Pro	Ser	Val	Gln	Ala	Ala	Val
			245						250					255	
Asp	Ser	Thr	Val	His	Ile	Leu	Gln	Ala	Ala	Val	Pro	Val	Ala	Arg	Ile
			260					265					270		
Glu	Phe	Leu	Asp	Glu	Val	Met	Met	Asp	Ala	Cys	Asn	Arg	Tyr	Ser	Lys
	275					280						285			
Leu	Asn	Cys	Leu	Val	Ala	Pro	Thr	Leu	Phe	Leu	Glu	Phe	His	Gly	Ser
	290					295					300				
Gln	Gln	Ala	Leu	Glu	Glu	Gln	Leu	Gln	Arg	Thr	Glu	Glu	Ile	Val	Gln
	305					310					315				320
Gln	Asn	Gly	Ala	Ser	Asp	Phe	Ser	Trp	Ala	Lys	Glu	Ala	Glu	Glu	Arg
			325						330					335	
Ser	Arg	Leu	Trp	Thr	Ala	Arg	His	Asn	Ala	Trp	Tyr	Ala	Ala	Leu	Ala
			340					345					350		
Thr	Arg	Pro	Gly	Cys	Lys	Gly	Tyr	Ser	Thr	Asp	Val	Cys	Val	Pro	Ile
	355					360						365			
Ser	Arg	Leu	Pro	Glu	Ile	Val	Val	Gln	Thr	Lys	Glu	Asp	Leu	Asn	Ala
	370					375					380				
Ser	Gly	Leu	Thr	Gly	Ser	Ile	Val	Gly	His	Val	Gly	Asp	Gly	Asn	Phe
	385					390					395				400
His	Cys	Ile	Leu	Leu	Val	Asn	Pro	Asp	Asp	Ala	Glu	Glu	Leu	Gly	Arg
			405						410					415	
Val	Lys	Ala	Phe	Ala	Glu	Gln	Leu	Gly	Arg	Arg	Ala	Leu	Ala	Leu	His
			420					425					430		
Gly	Thr	Cys	Thr	Gly	Glu	His	Gly	Ile	Gly	Met	Gly	Lys	Arg	Gln	Leu
	435						440					445			
Leu	Gln	Glu	Glu	Val	Gly	Ala	Val	Gly	Val	Glu	Thr	Met	Arg	Gln	Leu
	450					455					460				
Lys	Ala	Val	Leu	Asp	Pro	Gln	Gly	Leu	Met	Asn	Pro	Gly	Lys	Val	Leu
	465					470					475				480

<210>107



<211>698  
 <212>DNA  
 <213> Homo sapiens

<220>

<221> CDS

<222>(21)..(696)

<400>107

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		1				5				10		
tct	gtg	caa	ata	tca	att	ttt	tca	cat	tat	ctt	ttc	98
Ser	Val	Gln	Ile	Ser	Ile	Phe	Ser	His	Tyr	Leu	Phe	
		15						20			25	
aga	ggg	aag	gca	ttt	att	ttc	cct	caa	gaa	tca	gct	146
Arg	Gly	Lys	Ala	Phe	Ile	Phe	Pro	Gln	Glu	Ser	Ala	
		30					35				40	
tcc	ctg	atc	ccc	aag	gtg	aag	aag	ccc	ctg	aag	aac	194
Ser	Leu	Ile	Pro	Lys	Val	Lys	Lys	Pro	Leu	Lys	Asn	
		45				50					55	
ctg	aaa	acc	ttc	aca	gac	ttc	acc	tgc	cct	tat	agc	242
Leu	Lys	Thr	Phe	Thr	Asp	Phe	Thr	Cys	Pro	Tyr	Ser	
		60				65				70		
act	cgg	tcc	cag	gac	aat	gag	ctg	ctt	ctc	ctt	gtc	290
Thr	Arg	Ser	Gln	Asp	Asn	Glu	Leu	Leu	Leu	Val	Asn	
	75				80				85		90	
atg	tat	ctg	ctg	cac	att	gga	aat	gct	gcg	gtc	act	338
Met	Tyr	Leu	Leu	His	Ile	Gly	Asn	Ala	Ala	Val	Thr	
			95					100				105
acc	ccc	tgc	cct	cga	tct	cct	tat	gct	tcg	acc	cat	386
Thr	Pro	Cys	Pro	Arg	Ser	Pro	Tyr	Ala	Ser	Thr	His	
			110					115				120
tgg	gag	tct	gcc	tct	gga	att	gct	aca	ctc	tgg	gca	434
Trp	Glu	Ser	Ala	Ser	Gly	Ile	Ala	Thr	Leu	Trp	Ala	
		125				130					135	
gtg	ggg	agg	aag	ggt	gtg	tgg	aag	ggg	tac	tct	gtg	482
Val	Gly	Arg	Lys	Gly	Val	Trp	Lys	Gly	Tyr	Ser	Val	
	140				145					150		
aag	atc	atc	ctg	gga	caa	gag	cag	gat	tcc	ttt	ggg	530
Lys	Ile	Ile	Leu	Gly	Gln	Glu	Gln	Asp	Ser	Phe	Gly	
	155				160					165		170
gaa	aat	caa	tcc	ttt	gtt	ggg	gtg	ata	tgg	gat	gtg	578
Glu	Asn	Gln	Ser	Phe	Val	Gly	Val	Ile	Trp	Asp	Val	
			175					180				185
cat	gtg	ctc	cct	cca	aag	gag	atg	tgt	gac	tcc	tgt	626

His Val Leu Pro Pro Lys Glu Met Cys Asp Ser Cys Tyr Ser Gly Ser  
 190 195 200

ctc ctg aat cgg cat acc ctg act tat gaa gat aat ggc tat gtg gta 674  
 Leu Leu Asn Arg His Thr Leu Thr Tyr Glu Asp Asn Gly Tyr Val Val  
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Phe Pro Gln Glu Ser Ala Thr Val Tyr Val Ser Leu Ile Pro Lys Val  
 35 40 45

Lys Lys Pro Leu Lys Asn Phe Lys Leu Cys Leu Lys Thr Phe Thr Asp  
 50 55 60

Phe Thr Cys Pro Tyr Ser Leu Phe Tyr Ser Thr Arg Ser Gln Asp Asn  
 65 70 75 80

Glu Leu Leu Leu Leu Val Asn Lys Met Gly Met Tyr Leu Leu His Ile  
 85 90 95

Gly Asn Ala Ala Val Thr Phe Asn Gly Pro Thr Pro Cys Pro Arg Ser  
 100 105 110

Pro Tyr Ala Ser Thr His Val Asn Val Ser Trp Glu Ser Ala Ser Gly  
 115 120 125

Ile Ala Thr Leu Trp Ala Asn Gly Lys Leu Val Gly Arg Lys Gly Val  
 130 135 140

Trp Lys Gly Tyr Ser Val Gly Glu Glu Ala Lys Ile Ile Leu Gly Gln  
 145 150 155 160

Glu Gln Asp Ser Phe Gly Gly His Phe Asp Glu Asn Gln Ser Phe Val  
 165 170 175

Gly Val Ile Trp Asp Val Phe Leu Trp Asp His Val Leu Pro Pro Lys  
 180 185 190

Glu Met Cys Asp Ser Cys Tyr Ser Gly Ser Leu Leu Asn Arg His Thr  
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Ala  
225

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ctg ttg ccg ccg ccc tgc gca ctg gtg ctg gcc ggg gtg ccc agc tcc	95
Leu Leu Pro Pro Cys Ala Leu Val Leu Ala Gly Val Pro Ser Ser	
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tcc tcg cac ccg cag ccc tgc cag atc ctc aag cgc atc ggg cac gcg	143
Ser Ser His Pro Gln Pro Cys Gln Ile Leu Lys Arg Ile Gly His Ala	
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Val Arg Val Gly Ala Val His Leu Gln Pro Trp Thr Thr Ala Pro Arg	
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gcg gcc agc cgc gct ccg gac gac agc cga gca gga gcc cag agg gat	239
Ala Ala Ser Arg Ala Pro Asp Ser Arg Ala Gly Ala Gln Arg Asp	
65 70 75	
gag ccg gag cca ggg act agg cgg tcc ccg gcg ccc tcg ccg ggc gca	287
Glu Pro Glu Pro Gly Thr Arg Arg Ser Pro Ala Pro Ser Pro Gly Ala	
80 85 90 95	
cgc tgg ttg ggg agc acc ctg cat ggc cgg ggg ccg ccg ggc tcc cgt	335
Arg Trp Leu Gly Ser Thr Leu His Gly Arg Gly Pro Pro Gly Ser Arg	
100 105 110	
aag ccc ggg gag ggc gcc agg gcg gag gcc ctg tgg cca cgg gac gcc	383
Lys Pro Gly Glu Gly Ala Arg Ala Glu Ala Leu Trp Pro Arg Asp Ala	
115 120 125	
ctc cta ttt gcc gtg gac aac ctg aac cgc gtg gaa ggg ctg cta ccc	431
Leu Leu Phe Ala Val Asp Asn Leu Asn Arg Val Glu Gly Leu Leu Pro	
130 135 140	
tac aac ctg tct ttg gaa gta gtg atg gcc atc gag gca ggc ctg ggc	479
Tyr Asn Leu Ser Leu Glu Val Val Met Ala Ile Glu Ala Gly Leu Gly	
145 150 155	
gat ctg cca ctt ttg ccc ttc tcc tcc cct agt tcg cca tgg agc agt	527
Asp Leu Pro Leu Leu Pro Phe Ser Ser Pro Ser Ser Pro Trp Ser Ser	
160 165 170 175	

gac cct ttc tcc ttc ctg caa agt gtg tgc cat acc gtg gtg gtg caa	575
Asp Pro Phe Ser Phe Leu Gln Ser Val Cys His Thr Val Val Val Gln	
180 185 190	
ggg gtg tgc gcg ctg ctc gcc ttc ccc cag agc cag ggc gaa atg atg	623
Gly Val Ser Ala Leu Leu Ala Phe Pro Gln Ser Gln Gly Glu Met Met	
195 200 205	
gag ctc gac ttg gtc agc tta gtc ctg cac att cca gtg atc agc atc	671
Glu Leu Asp Leu Val Ser Leu Val Leu His Ile Pro Val Ile Ser Ile	
210 215 220	
gtg cgc cac gag ttt cca cgg gag agt cag aat ccc ctt cac cta caa	719
Val Arg His Glu Phe Pro Arg Glu Ser Gln Asn Pro Leu His Leu Gln	
225 230 235	
ctg agt tta gaa aat tca tta agt tct gat gct gat gtc act gtc tca	767
Leu Ser Leu Glu Asn Ser Leu Ser Ser Asp Ala Asp Val Thr Val Ser	
240 245 250 255	
atc ctg acc atg aac aac tgg tac aat ttt agc ttg ttg ctg tgc cag	815
Ile Leu Thr Met Asn Asn Trp Tyr Asn Phe Ser Leu Leu Leu Cys Gln	
260 265 270	
gaa gac tgg aac atc acc gac ttc ctc ctc ctt acc cag aat aat tcc	863
Glu Asp Trp Asn Ile Thr Asp Phe Leu Leu Leu Thr Gln Asn Asn Ser	
275 280 285	
aag ttc cac ctt ggt tct atc atc aac atc acc gct aac ctc ccc tcc	911
Lys Phe His Leu Gly Ser Ile Ile Asn Ile Thr Ala Asn Leu Pro Ser	
290 295 300	
acc cag gac ctc ttg agc ttc cta cag atc cag ctt gag agt att aag	959
Thr Gln Asp Leu Leu Ser Phe Leu Gln Ile Gln Leu Glu Ser Ile Lys	
305 310 315	
aac agc aca ccc aca gtg gtg atg ttt ggc tgc gac atg gaa agt atc	1007
Asn Ser Thr Pro Thr Val Val Met Phe Gly Cys Asp Met Glu Ser Ile	
320 325 330 335	
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Arg Arg Ile Phe Glu Ile Thr Thr Gln Phe Gly Val Met Pro Pro Glu	
340 345 350	
ctt cgt tgg gtg ctg gga gat tcc cag aat gtg gag gaa ctg agg aca	1103
Leu Arg Trp Val Leu Gly Asp Ser Gln Asn Val Glu Glu Leu Arg Thr	
355 360 365	
gag ggt ctg ccc tta ggg ctc att gct cat gga aaa aca aca cag tct	1151
Glu Gly Leu Pro Leu Gly Leu Ile Ala His Gly Lys Thr Thr Gln Ser	
370 375 380	
gtc ttt gag cac tac gta caa gat gct atg gag ctg gtc gca aga gct	1199
Val Phe Glu His Tyr Val Gln Asp Ala Met Glu Leu Val Ala Arg Ala	
385 390 395	

gta gcc aca gcc acc atg atc caa cca gaa ctt gct ctc att ccc agc	1247
Val Ala Thr Ala Thr Met Ile Gln Pro Glu Leu Ala Leu Ile Pro Ser	
400 405 410 415	
acg atg aac tgc atg gag gtg gaa act aca aat ctc act tca gga caa	1295
Thr Met Asn Cys Met Glu Val Glu Thr Thr Asn Leu Thr Ser Gly Gln	
420 425 430	
tat tta tca agg ttt cta gcc aat acc act ttc aga ggc ctc agt ggt	1343
Tyr Leu Ser Arg Phe Leu Ala Asn Thr Thr Phe Arg Gly Leu Ser Gly	
435 440 445	
tcc atc aga gta aaa ggt tcc acc atc gtc agc tca gaa aac aac ttt	1391
Ser Ile Arg Val Lys Gly Ser Thr Ile Val Ser Ser Glu Asn Asn Phe	
450 455 460	
ttc atc tgg aat ctt caa cat gac ccc atg gga aag cca atg tgg acc	1439
Phe Ile Trp Asn Leu Gln His Asp Pro Met Gly Lys Pro Met Trp Thr	
465 470 475	
cgc ttg ggc agc tgg cag ggg gga aag att gtc atg gac tat gga ata	1487
Arg Leu Gly Ser Trp Gln Gly Gly Lys Ile Val Met Asp Tyr Gly Ile	
480 485 490 495	
tgg cca gag cag gcc cag aga cac aaa acc cac ttc caa cat cca agt	1535
Trp Pro Glu Gln Ala Gln Arg His Lys Thr His Phe Gln His Pro Ser	
500 505 510	
aag cta cac ttg aga gtg gtt acc ctg att gag cat cct ttt gtc ttc	1583
Lys Leu His Leu Arg Val Val Thr Leu Ile Glu His Pro Phe Val Phe	
515 520 525	
aca agg gag gta gat gat gaa ggc ttg tgc cct gct ggc caa ctc tgt	1631
Thr Arg Glu Val Asp Asp Glu Gly Leu Cys Pro Ala Gly Gln Leu Cys	
530 535 540	
cta gac ccc atg act aat gac tct tcc aca ttg gac agc ctt ttt agc	1679
Leu Asp Pro Met Thr Asn Asp Ser Ser Thr Leu Asp Ser Leu Phe Ser	
545 550 555	
agc ctc cat agc agt aat gat aca gtg ccc att aaa ttc aag aag tgc	1727
Ser Leu His Ser Ser Asn Asp Thr Val Pro Ile Lys Phe Lys Lys Cys	
560 565 570 575	
tgc tat gga tat tgc att gat ctg ctg gaa aag ata gca gaa gac atg	1775
Cys Tyr Gly Tyr Cys Ile Asp Leu Leu Glu Lys Ile Ala Glu Asp Met	
580 585 590	
aac ttt gac ttc gac ctc tat att gta ggg gat gga aag tat gga gca	1823
Asn Phe Asp Phe Asp Leu Tyr Ile Val Gly Asp Gly Lys Tyr Gly Ala	
595 600 605	
tgg aaa aat ggg cac tgg act ggg cta gtg ggt gat ctc ctg aga ggg	1871
Trp Lys Asn Gly His Trp Thr Gly Leu Val Gly Asp Leu Leu Arg Gly	
610 615 620	
act gcc cac atg gca gtc act tcc ttt agc atc aat act gca cgg agc	1919

Thr	Ala	His	Met	Ala	Val	Thr	Ser	Phe	Ser	Ile	Asn	Thr	Ala	Arg	Ser		
625						630					635						
cag	gtg	ata	gat	ttc	acc	agc	cct	ttc	ttc	tcc	acc	agc	ttg	ggc	atc	1967	
Gln	Val	Ile	Asp	Phe	Thr	Ser	Pro	Phe	Phe	Ser	Thr	Ser	Leu	Gly	Ile		
640					645					650					655		
tta	gtg	agg	acc	cga	gat	aca	gca	gct	ccc	att	gga	gcc	ttc	atg	tgg	2015	
Leu	Val	Arg	Thr	Arg	Asp	Thr	Ala	Ala	Pro	Ile	Gly	Ala	Phe	Met	Trp		
				660					665					670			
cca	ctc	cac	tgg	aca	atg	tgg	ctg	ggg	att	ttt	gtg	gct	ctg	cac	atc	2063	
Pro	Leu	His	Trp	Thr	Met	Trp	Leu	Gly	Ile	Phe	Val	Ala	Leu	His	Ile		
			675					680					685				
act	gcc	gtc	ttc	ctc	act	ctg	tat	gaa	tgg	aag	agt	cca	ttt	ggg	ttg	2111	
Thr	Ala	Val	Phe	Leu	Thr	Leu	Tyr	Glu	Trp	Lys	Ser	Pro	Phe	Gly	Leu		
		690					695					700					
act	tcc	aag	ggg	cga	aat	aga	agt	aaa	gtc	ttc	tcc	ttt	tct	tca	gcc	2159	
Thr	Ser	Lys	Gly	Arg	Asn	Arg	Ser	Lys	Val	Phe	Ser	Phe	Ser	Ser	Ala		
		705				710					715						
ttg	aac	atc	tgt	tat	gcc	ctc	ttg	ttt	ggc	aga	aca	gtg	gcc	atc	aaa	2207	
Leu	Asn	Ile	Cys	Tyr	Ala	Leu	Leu	Phe	Gly	Arg	Thr	Val	Ala	Ile	Lys		
720					725					730					735		
cct	cca	aaa	tgt	tgg	act	gga	agg	ttt	cta	atg	aac	ctt	tgg	gcc	att	2255	
Pro	Pro	Lys	Cys	Trp	Thr	Gly	Arg	Phe	Leu	Met	Asn	Leu	Trp	Ala	Ile		
				740					745					750			
ttc	tgt	atg	ttt	tgc	ctt	tcc	aca	tac	acg	gca	aac	ttg	gct	gct	gtc	2303	
Phe	Cys	Met	Phe	Cys	Leu	Ser	Thr	Tyr	Thr	Ala	Asn	Leu	Ala	Ala	Val		
			755					760					765				
atg	gta	ggg	gag	aag	atc	tat	gaa	gag	ctt	tct	gga	ata	cat	gac	ccc	2351	
Met	Val	Gly	Glu	Lys	Ile	Tyr	Glu	Glu	Leu	Ser	Gly	Ile	His	Asp	Pro		
		770					775					780					
aag	tta	cat	cat	cct	tcc	caa	gga	ttc	cgc	ttt	gga	act	gtc	cga	gaa	2399	
Lys	Leu	His	His	Pro	Ser	Gln	Gly	Phe	Arg	Phe	Gly	Thr	Val	Arg	Glu		
		785				790					795						
agc	agt	gct	gaa	gat	tat	gtg	aga	caa	agt	ttc	cca	gag	atg	cat	gaa	2447	
Ser	Ser	Ala	Glu	Asp	Tyr	Val	Arg	Gln	Ser	Phe	Pro	Glu	Met	His	Glu		
800						805				810					815		
tat	atg	aga	agg	tac	aat	gtt	cca	gcc	acc	cct	gat	gga	gtg	gag	tat	2495	
Tyr	Met	Arg	Arg	Tyr	Asn	Val	Pro	Ala	Thr	Pro	Asp	Gly	Val	Glu	Tyr		
				820					825					830			
ctg	aag	aat	gat	cca	gag	aaa	cta	gac	gcc	ttc	atc	atg	gac	aaa	gcc	2543	
Leu	Lys	Asn	Asp	Pro	Glu	Lys	Leu	Asp	Ala	Phe	Ile	Met	Asp	Lys	Ala		
			835					840					845				
ctt	ctg	gat	tat	gaa	gtg	tca	ata	gat	gct	gac	tgc	aaa	ctt	ctc	act	2591	
Leu	Leu	Asp	Tyr	Glu	Val	Ser	Ile	Asp	Ala	Asp	Cys	Lys	Leu	Leu	Thr		

850	855	860	
gtg ggg aag cca ttt gcc ata gaa ggt tac ggc att ggc ctc cca ccc			2639
Val Gly Lys Pro Phe Ala Ile Glu Gly Tyr Gly Ile Gly Leu Pro Pro			
865	870	875	
aac tct cca ttg acc gcc aac ata tcc gag cta atc agt caa tac aag			2687
Asn Ser Pro Leu Thr Ala Asn Ile Ser Glu Leu Ile Ser Gln Tyr Lys			
880	885	890	895
tca cat ggg ttt atg gat atg ctc cat gac aag tgg tac agg gtg gtt			2735
Ser His Gly Phe Met Asp Met Leu His Asp Lys Trp Tyr Arg Val Val			
	900	905	910
ccc tgt ggc aag aga agt ttt gct gtc acg gag act ttg caa atg ggc			2783
Pro Cys Gly Lys Arg Ser Phe Ala Val Thr Glu Thr Leu Gln Met Gly			
	915	920	925
atc aaa cac ttc tct ggg ctc ttt gtg ctg ctg tgc att gga ttt ggt			2831
Ile Lys His Phe Ser Gly Leu Phe Val Leu Leu Cys Ile Gly Phe Gly			
	930	935	940
ctg tcc att ttg acc acc att ggt gag cac ata gta tac agg ctg ctg			2879
Leu Ser Ile Leu Thr Thr Ile Gly Glu His Ile Val Tyr Arg Leu Leu			
	945	950	955
cta cca cga atc aaa aac aaa tcc aag ctg caa tac tgg ctc cac acc			2927
Leu Pro Arg Ile Lys Asn Lys Ser Lys Leu Gln Tyr Trp Leu His Thr			
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agc cag aga tta cac aga gca ata aat aca tca ttt ata gag gaa aag			2975
Ser Gln Arg Leu His Arg Ala Ile Asn Thr Ser Phe Ile Glu Glu Lys			
	980	985	990
cag cag cat ttc aag acc aaa cgt gtg gaa aag aga tct aat gtg gga			3023
Gln Gln His Phe Lys Thr Lys Arg Val Glu Lys Arg Ser Asn Val Gly			
	995	000	005
ccc cgt cag ctt acc gta tgg aat act tcc aat ctg agt cat gac aac			3071
Pro Arg Gln Leu Thr Val Trp Asn Thr Ser Asn Leu Ser His Asp Asn			
	010	015	020
cga cgg aaa tac atc ttt agt gat gag gaa gga caa aac cag ctg ggc			3119
Arg Arg Lys Tyr Ile Phe Ser Asp Glu Glu Gly Gln Asn Gln Leu Gly			
	025	030	035
atc cgg atc cac cag gac atc ccc ctc cct cca agg aga aga gag ctc			3167
Ile Arg Ile His Gln Asp Ile Pro Leu Pro Pro Arg Arg Arg Glu Leu			
040	045	050	055
cct gcc ttg cgg acc acc aat ggg aaa gca gac tcc cta aat gta tct			3215
Pro Ala Leu Arg Thr Thr Asn Gly Lys Ala Asp Ser Leu Asn Val Ser			
	060	065	070
cgg aac tca gtg atg cag gaa ctc tca gag ctc gag aag cag att cag			3263
Arg Asn Ser Val Met Gln Glu Leu Ser Glu Leu Glu Lys Gln Ile Gln			
	075	080	085

gtg atc cgt cag gag ctg cag ctg gct gtg agc agg aaa acg gag ctg 3311  
 Val Ile Arg Gln Glu Leu Gln Leu Ala Val Ser Arg Lys Thr Glu Leu  
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gag gag tat caa agg aca agt cgg act tgt gag tcc tag 3350  
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                                   20                                  25                                  30

Ser His Pro Gln Pro Cys Gln Ile Leu Lys Arg Ile Gly His Ala Val  
                                   35                                  40                                  45

Arg Val Gly Ala Val His Leu Gln Pro Trp Thr Thr Ala Pro Arg Ala  
           50                                  55                                  60

Ala Ser Arg Ala Pro Asp Asp Ser Arg Ala Gly Ala Gln Arg Asp Glu  
           65                                  70                                  75                                  80

Pro Glu Pro Gly Thr Arg Arg Ser Pro Ala Pro Ser Pro Gly Ala Arg  
                                   85                                  90                                  95

Trp Leu Gly Ser Thr Leu His Gly Arg Gly Pro Pro Gly Ser Arg Lys  
                                   100                                  105                                  110

Pro Gly Glu Gly Ala Arg Ala Glu Ala Leu Trp Pro Arg Asp Ala Leu  
           115                                  120                                  125

Leu Phe Ala Val Asp Asn Leu Asn Arg Val Glu Gly Leu Leu Pro Tyr  
           130                                  135                                  140

Asn Leu Ser Leu Glu Val Val Met Ala Ile Glu Ala Gly Leu Gly Asp  
           145                                  150                                  155                                  160

Leu Pro Leu Leu Pro Phe Ser Ser Pro Ser Ser Pro Trp Ser Ser Asp  
                                   165                                  170                                  175

Pro Phe Ser Phe Leu Gln Ser Val Cys His Thr Val Val Val Gln Gly  
                                   180                                  185                                  190

Val Ser Ala Leu Leu Ala Phe Pro Gln Ser Gln Gly Glu Met Met Glu  
           195                                  200                                  205

Leu Asp Leu Val Ser Leu Val Leu His Ile Pro Val Ile Ser Ile Val  
           210                                  215                                  220



Arg His Glu Phe Pro Arg Glu Ser Gln Asn Pro Leu His Leu Gln Leu  
 225 230 235 240  
 Ser Leu Glu Asn Ser Leu Ser Ser Asp Ala Asp Val Thr Val Ser Ile  
 245 250 255  
 Leu Thr Met Asn Asn Trp Tyr Asn Phe Ser Leu Leu Leu Cys Gln Glu  
 260 265 270  
 Asp Trp Asn Ile Thr Asp Phe Leu Leu Leu Thr Gln Asn Asn Ser Lys  
 275 280 285  
 Phe His Leu Gly Ser Ile Ile Asn Ile Thr Ala Asn Leu Pro Ser Thr  
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 Gln Asp Leu Leu Ser Phe Leu Gln Ile Gln Leu Glu Ser Ile Lys Asn  
 305 310 315 320  
 Ser Thr Pro Thr Val Val Met Phe Gly Cys Asp Met Glu Ser Ile Arg  
 325 330 335  
 Arg Ile Phe Glu Ile Thr Thr Gln Phe Gly Val Met Pro Pro Glu Leu  
 340 345 350  
 Arg Trp Val Leu Gly Asp Ser Gln Asn Val Glu Glu Leu Arg Thr Glu  
 355 360 365  
 Gly Leu Pro Leu Gly Leu Ile Ala His Gly Lys Thr Thr Gln Ser Val  
 370 375 380  
 Phe Glu His Tyr Val Gln Asp Ala Met Glu Leu Val Ala Arg Ala Val  
 385 390 395 400  
 Ala Thr Ala Thr Met Ile Gln Pro Glu Leu Ala Leu Ile Pro Ser Thr  
 405 410 415  
 Met Asn Cys Met Glu Val Glu Thr Thr Asn Leu Thr Ser Gly Gln Tyr  
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 450 455 460  
 Ile Trp Asn Leu Gln His Asp Pro Met Gly Lys Pro Met Trp Thr Arg  
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 Pro Glu Gln Ala Gln Arg His Lys Thr His Phe Gln His Pro Ser Lys  
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Arg Glu Val Asp Asp Glu Gly Leu Cys Pro Ala Gly Gln Leu Cys Leu  
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Asp Pro Met Thr Asn Asp Ser Ser Thr Leu Asp Ser Leu Phe Ser Ser  
 545 550 555 560

Leu His Ser Ser Asn Asp Thr Val Pro Ile Lys Phe Lys Lys Cys Cys  
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Tyr Gly Tyr Cys Ile Asp Leu Leu Glu Lys Ile Ala Glu Asp Met Asn  
 580 585 590

Phe Asp Phe Asp Leu Tyr Ile Val Gly Asp Gly Lys Tyr Gly Ala Trp  
 595 600 605

Lys Asn Gly His Trp Thr Gly Leu Val Gly Asp Leu Leu Arg Gly Thr  
 610 615 620

Ala His Met Ala Val Thr Ser Phe Ser Ile Asn Thr Ala Arg Ser Gln  
 625 630 635 640

Val Ile Asp Phe Thr Ser Pro Phe Phe Ser Thr Ser Leu Gly Ile Leu  
 645 650 655

Val Arg Thr Arg Asp Thr Ala Ala Pro Ile Gly Ala Phe Met Trp Pro  
 660 665 670

Leu His Trp Thr Met Trp Leu Gly Ile Phe Val Ala Leu His Ile Thr  
 675 680 685

Ala Val Phe Leu Thr Leu Tyr Glu Trp Lys Ser Pro Phe Gly Leu Thr  
 690 695 700

Ser Lys Gly Arg Asn Arg Ser Lys Val Phe Ser Phe Ser Ser Ala Leu  
 705 710 715 720

Asn Ile Cys Tyr Ala Leu Leu Phe Gly Arg Thr Val Ala Ile Lys Pro  
 725 730 735

Pro Lys Cys Trp Thr Gly Arg Phe Leu Met Asn Leu Trp Ala Ile Phe  
 740 745 750

Cys Met Phe Cys Leu Ser Thr Tyr Thr Ala Asn Leu Ala Ala Val Met  
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Val Gly Glu Lys Ile Tyr Glu Glu Leu Ser Gly Ile His Asp Pro Lys  
 770 775 780

Leu His His Pro Ser Gln Gly Phe Arg Phe Gly Thr Val Arg Glu Ser  
 785 790 795 800

Ser Ala Glu Asp Tyr Val Arg Gln Ser Phe Pro Glu Met His Glu Tyr  
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Met Arg Arg Tyr Asn Val Pro Ala Thr Pro Asp Gly Val Glu Tyr Leu  
 820 825 830

Lys Asn Asp Pro Glu Lys Leu Asp Ala Phe Ile Met Asp Lys Ala Leu  
 835 840 845  
 Leu Asp Tyr Glu Val Ser Ile Asp Ala Asp Cys Lys Leu Leu Thr Val  
 850 855 860  
 Gly Lys Pro Phe Ala Ile Glu Gly Tyr Gly Ile Gly Leu Pro Pro Asn  
 865 870 875 880  
 Ser Pro Leu Thr Ala Asn Ile Ser Glu Leu Ile Ser Gln Tyr Lys Ser  
 885 890 895  
 His Gly Phe Met Asp Met Leu His Asp Lys Trp Tyr Arg Val Val Pro  
 900 905 910  
 Cys Gly Lys Arg Ser Phe Ala Val Thr Glu Thr Leu Gln Met Gly Ile  
 915 920 925  
 Lys His Phe Ser Gly Leu Phe Val Leu Leu Cys Ile Gly Phe Gly Leu  
 930 935 940  
 Ser Ile Leu Thr Thr Ile Gly Glu His Ile Val Tyr Arg Leu Leu Leu  
 945 950 955 960  
 Pro Arg Ile Lys Asn Lys Ser Lys Leu Gln Tyr Trp Leu His Thr Ser  
 965 970 975  
 Gln Arg Leu His Arg Ala Ile Asn Thr Ser Phe Ile Glu Glu Lys Gln  
 980 985 990  
 Gln His Phe Lys Thr Lys Arg Val Glu Lys Arg Ser Asn Val Gly Pro  
 995 000 005  
 Arg Gln Leu Thr Val Trp Asn Thr Ser Asn Leu Ser His Asp Asn Arg  
 010 015 020  
 Arg Lys Tyr Ile Phe Ser Asp Glu Glu Gly Gln Asn Gln Leu Gly Ile  
 025 030 035 040  
 Arg Ile His Gln Asp Ile Pro Leu Pro Pro Arg Arg Arg Glu Leu Pro  
 045 050 055  
 Ala Leu Arg Thr Thr Asn Gly Lys Ala Asp Ser Leu Asn Val Ser Arg  
 060 065 070  
 Asn Ser Val Met Gln Glu Leu Ser Glu Leu Glu Lys Gln Ile Gln Val  
 075 080 085  
 Ile Arg Gln Glu Leu Gln Leu Ala Val Ser Arg Lys Thr Glu Leu Glu  
 090 095 100  
 Glu Tyr Gln Arg Thr Ser Arg Thr Cys Glu Ser  
 105 110 115  
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<213> Homo sapiens

<220>

<221> CDS

<222> (10) .. (1252)

<400>111

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cccagcgcc atg ggg gag tgg gcg ttc ctg ggc tcg ctg ctg gac gcc      48
      Met Gly Glu Trp Ala Phe Leu Gly Ser Leu Leu Asp Ala
            1             5             10

gtg cag ctg cag tcg ccg ctc gtg ggc cgc ctc tgg ctg gtg gtc atg      96
Val Gln Leu Gln Ser Pro Leu Val Gly Arg Leu Trp Leu Val Val Met
      15             20             25

ctg atc ttc cgc atc ctg gtg ctg gcc acg gtg ggc ggc gcc gtg ttc      144
Leu Ile Phe Arg Ile Leu Val Leu Ala Thr Val Gly Gly Ala Val Phe
      30             35             40             45

gag gac gag caa gag gag ttc gtg tgc aac acg ctg cag ccg ggc tgt      192
Glu Asp Glu Gln Glu Glu Phe Val Cys Asn Thr Leu Gln Pro Gly Cys
            50             55             60

cgc cag acc tgc tac gac cgc gcc ttc ccg gtc tcc cac tac cgc ttc      240
Arg Gln Thr Cys Tyr Asp Arg Ala Phe Pro Val Ser His Tyr Arg Phe
            65             70             75

tgg ctc ttc cac atc ctg ctg ctc tcg gcg ccc ccg gtg ctg ttc gtc      288
Trp Leu Phe His Ile Leu Leu Ser Ala Pro Pro Val Leu Phe Val
            80             85             90

gtc tac tcc atg cac ccg gca ggc aag gag gcg ggc ggc gct gag gcg      336
Val Tyr Ser Met His Arg Ala Gly Lys Glu Ala Gly Gly Ala Glu Ala
      95             100             105

gcg gcg cag tgc gcc ccc gga ctg ccc gag gcc cag tgc gcg ccg tgc      384
Ala Ala Gln Cys Ala Pro Gly Leu Pro Glu Ala Gln Cys Ala Pro Cys
      110             115             120             125

gcc ctg cgc gcc cgc cgc gcg cgc cgc tgc tac ctg ctg agc gtg gcg      432
Ala Leu Arg Ala Arg Arg Ala Arg Arg Cys Tyr Leu Leu Ser Val Ala
            130             135             140

ctg cgc ctg ctg gcc gag ctg acc ttc ctg ggc ggc cag gcg ctg ctc      480
Leu Arg Leu Leu Ala Glu Leu Thr Phe Leu Gly Gly Gln Ala Leu Leu
            145             150             155

tac ggc ttc cgc gtg gcc ccg cac ttc gcg tgc gcc ggt ccg ccc tgc      528
Tyr Gly Phe Arg Val Ala Pro His Phe Ala Cys Ala Gly Pro Pro Cys
            160             165             170

ccg cac acg gtc gac tgc ttc gtg agc cgg ccc acc gag aag acc gtc      576
Pro His Thr Val Asp Cys Phe Val Ser Arg Pro Thr Glu Lys Thr Val
            175             180             185

ttc gtg ctc ttc tat ttc gcg gtg ggg ctg ctg tcg gcg ctg ctc agc      624
Phe Val Leu Phe Tyr Phe Ala Val Gly Leu Ser Ala Leu Leu Ser
      190             195             200             205
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gta gcc gag ctg ggc cac ctg ctc tgg aag ggc cgc ccg cgc gcc ggg Val Ala Glu Leu Gly His Leu Leu Trp Lys Gly Arg Pro Arg Ala Gly	672
210 215 220	
gag cgt gac aac cgc tgc aac cgt gca cac gaa gag gcg cag aag ctg Glu Arg Asp Asn Arg Cys Asn Arg Ala His Glu Glu Ala Gln Lys Leu	720
225 230 235	
ctc ccg ccg ccg ccg ccg cca cct ccg cca ccg gcc ctg ccc tcc cgg Leu Pro Pro Pro Pro Pro Pro Pro Pro Pro Pro Ala Leu Pro Ser Arg	768
240 245 250	
cgc ccc ggc ccc gag ccg tgc gcc ccg ccg gcc tat gcg cac ccg gcg Arg Pro Gly Pro Glu Pro Cys Ala Pro Pro Ala Tyr Ala His Pro Ala	816
255 260 265	
ccg gcc agc ctc cgc gag tgc ggc agc ggc cgc gcc agg aat gcg cca Pro Ala Ser Leu Arg Glu Cys Gly Ser Gly Arg Gly Arg Asn Ala Pro	864
270 275 280 285	
atg gct ccc aga tgt gga cgc cac cgc tta acc cct tac ccc cca gcc Met Ala Pro Arg Cys Gly Arg His Arg Leu Thr Pro Tyr Pro Pro Ala	912
290 295 300	
gcg ctc ccc caa ggg cct tcc agc ctg agc ccc gcc aac agc agg gag Ala Leu Pro Gln Gly Pro Ser Ser Leu Ser Pro Ala Asn Ser Arg Glu	960
305 310 315	
ctc tgc cca ggt gag aac cag ccc agg act gga gtc agc gcc agc ccg Leu Cys Pro Gly Glu Asn Gln Pro Arg Thr Gly Val Ser Ala Ser Pro	1008
320 325 330	
ccc cta gtg ccc acg gac acc tcc caa cct aga tcc tac ctg tct tcc Pro Leu Val Pro Thr Asp Thr Ser Gln Pro Arg Ser Tyr Leu Ser Ser	1056
335 340 345	
ttc ctt gag gct gga ggg gaa ggc tca tgg aca caa gaa tgc aag cat Phe Leu Glu Ala Gly Gly Glu Gly Ser Trp Thr Gln Glu Cys Lys His	1104
350 355 360 365	
gca tgc aca cag cta cac tgc ctc cca tcc cct ccc gcc gac gct gcc Ala Cys Thr Gln Leu His Cys Leu Pro Ser Pro Pro Ala Asp Ala Ala	1152
370 375 380	
agg gtg ccc ctc cct cgc tcc cca tcc tgg cag ggc ggg cgg cgc aga Arg Val Pro Pro Arg Ser Pro Ser Trp Gln Gly Gly Arg Arg Arg	1200
385 390 395	
gcg ctc cac tcc gga ttc ccc acg ccc ccg agc cgt tgc cag gct cgc Ala Leu His Ser Gly Phe Pro Thr Pro Pro Ser Arg Ser Gln Ala Arg	1248
400 405 410	
aca ag Thr	1253

<400>112

Gln Ser Pro Leu Val Gly Arg Leu Trp Leu Val Val Met Leu Ile Phe  
20 25 30

Gln Glu Glu Phe Val Cys Asn Thr Leu Gln Pro Gly Cys Arg Gln Thr  
50 55 60

His Ile Leu Leu Leu Ser Ala Pro Pro Val Leu Phe Val Val Tyr Ser  
85 90 95

Cys Ala Pro Gly Leu Pro Glu Ala Gln Cys Ala Pro Cys Ala Leu Arg  
115 120 125

Leu Ala Glu Leu Thr Phe Leu Gly Gly Gln Ala Leu Leu Tyr Gly Phe  
145 150 155 160

Val Asp Cys Phe Val Ser Arg Pro Thr Glu Lys Thr Val Phe Val Leu  
180 185 190

Leu Gly His Leu Leu Trp Lys Gly Arg Pro Arg Ala Gly Glu Arg Asp  
210 215 220

Pro Pro Pro Pro Pro Pro Pro Pro Ala Leu Pro Ser Arg Arg Pro Gly  
245 250 255

248

Leu Arg Glu Cys Gly Ser Gly Arg Gly Arg Asn Ala Pro Met Ala Pro  
 275 280 285  
 Arg Cys Gly Arg His Arg Leu Thr Pro Tyr Pro Pro Ala Ala Leu Pro  
 290 295 300  
 Gln Gly Pro Ser Ser Leu Ser Pro Ala Asn Ser Arg Glu Leu Cys Pro  
 305 310 315 320  
 Gly Glu Asn Gln Pro Arg Thr Gly Val Ser Ala Ser Pro Pro Leu Val  
 325 330 335  
 Pro Thr Asp Thr Ser Gln Pro Arg Ser Tyr Leu Ser Ser Phe Leu Glu  
 340 345 350  
 Ala Gly Gly Glu Gly Ser Trp Thr Gln Glu Cys Lys His Ala Cys Thr  
 355 360 365  
 Gln Leu His Cys Leu Pro Ser Pro Pro Ala Asp Ala Ala Arg Val Pro  
 370 375 380  
 Leu Pro Arg Ser Pro Ser Trp Gln Gly Gly Arg Arg Arg Ala Leu His  
 385 390 395 400  
 Ser Gly Phe Pro Thr Pro Pro Ser Arg Ser Gln Ala Arg Thr  
 405 410

<210>113

<211>724

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(108)..(552)

<400>113

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tctgcggcag gcaccaggaa tctgcctttt cagttctgtc tccggcaggc 100

tttgagg atg aag gct gcg ggc att ctg acc ctc att ggc tgc ctg gtc 149  
 Met Lys Ala Ala Gly Ile Leu Thr Leu Ile Gly Cys Leu Val  
 5 10

aca ggc gcc gag tcc aaa atc tac act cgt tgc aaa ctg gca aaa ata 197  
 Thr Gly Ala Glu Ser Lys Ile Tyr Thr Arg Cys Lys Leu Ala Lys Ile  
 15 20 25 30

ttc tcg agg gct ggc ctg gac aat tac tgg ggc ttc agc ctt gga aac 245  
 Phe Ser Arg Ala Gly Leu Asp Asn Tyr Trp Gly Phe Ser Leu Gly Asn  
 35 40 45

tgg atc tgc atg gcg tat tat gag agc ggc tac aac acc aca gcc cag 293

Trp Ile Cys Met Ala Tyr Tyr Glu Ser Gly Tyr Asn Thr Thr Ala Gln  
                   50                                  55                                  60

acg gtc ctg gat gac ggc agc atc gac tac ggc atc ttc cag atc aac 341  
 Thr Val Leu Asp Asp Gly Ser Ile Asp Tyr Gly Ile Phe Gln Ile Asn  
                   65                                  70                                  75

agc ttc gcg tgg tgc aga cgc gga aag ctg aag gag aac aac cac tgc 389  
 Ser Phe Ala Trp Cys Arg Arg Gly Lys Leu Lys Glu Asn Asn His Cys  
                   80                                  85                                  90

cac gtc gcc tgc tca gcc ttg gtc act gat gac ctc aca gat gcg att 437  
 His Val Ala Cys Ser Ala Leu Val Thr Asp Asp Leu Thr Asp Ala Ile  
                   95                                  100                                  105                                  110

atc tgt gcc aag aaa att gtt aaa gag aca caa gga atg aac tat tgg 485  
 Ile Cys Ala Lys Lys Ile Val Lys Glu Thr Gln Gly Met Asn Tyr Trp  
                                   115                                  120                                  125

caa ggc tgg aag aaa cac tgt gag ggg aga gac ctg tcc gac tgg aaa 533  
 Gln Gly Trp Lys Lys His Cys Glu Gly Arg Asp Leu Ser Asp Trp Lys  
                   130                                  135                                  140

aaa gac tgt gag gtt tcc taaactggaa ctggaccag gatgctttgc 581  
 Lys Asp Cys Glu Val Ser  
                   145

agcaacgccc tagggtttgc agtgaatgtc caaatgcctg tgtcatcttg 631

tcccgtttcc tcccaatatt ccttctcaaa cttggagagg gaaaattaag 681

ctatactttt aagaaaataa atatttccat ttaaatgtca aaa 724

<210>114  
 <211>148  
 <212>PRT  
 <213> Homo sapiens

<400>114  
 Met Lys Ala Ala Gly Ile Leu Thr Leu Ile Gly Cys Leu Val Thr Gly  
           1                                  5                                  10                                  15

Ala Glu Ser Lys Ile Tyr Thr Arg Cys Lys Leu Ala Lys Ile Phe Ser  
                   20                                  25                                  30

Arg Ala Gly Leu Asp Asn Tyr Trp Gly Phe Ser Leu Gly Asn Trp Ile  
                   35                                  40                                  45

Cys Met Ala Tyr Tyr Glu Ser Gly Tyr Asn Thr Thr Ala Gln Thr Val  
           50                                  55                                  60



Leu Asp Asp Gly Ser Ile Asp Tyr Gly Ile Phe Gln Ile Asn Ser Phe  
 65 70 75 80  
 Ala Trp Cys Arg Arg Gly Lys Leu Lys Glu Asn Asn His Cys His Val  
 85 90 95  
 Ala Cys Ser Ala Leu Val Thr Asp Asp Leu Thr Asp Ala Ile Ile Cys  
 100 105 110  
 Ala Lys Lys Ile Val Lys Glu Thr Gln Gly Met Asn Tyr Trp Gln Gly  
 115 120 125  
 Trp Lys Lys His Cys Glu Gly Arg Asp Leu Ser Asp Trp Lys Lys Asp  
 130 135 140  
 Cys Glu Val Ser  
 145

<210>115  
 <211>453  
 <212>DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222>(134)..(431)  
 <400>115

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 acactcgttg caaactggca aaaatattct cgagggtcgg cctggacaat 100  
  
 tactggggct tcagccttgg aaactggatc tgc atg gcg tat tat gag agc 151  
 Met Ala Tyr Tyr Glu Ser  
 5  
 ggc tac aac acc aca gcc cag acg gtc ctg gat gac ggc agc atc gac 199  
 Gly Tyr Asn Thr Thr Ala Gln Thr Val Leu Asp Asp Gly Ser Ile Asp  
 10 15 20  
 tac ggc atc ttc cag atc aac agc ttc gcg tgg tgc aga cgc gga aag 247  
 Tyr Gly Ile Phe Gln Ile Asn Ser Phe Ala Trp Cys Arg Arg Gly Lys  
 25 30 35  
 ctg aag gag aac aac cac tgc cac gtc gcc tgc tca gcc ttg gtc act 295  
 Leu Lys Glu Asn Asn His Cys His Val Ala Cys Ser Ala Leu Val Thr  
 40 45 50  
 gat gac ctc aca gat gca att atc tgt gcc agg aaa att gtt aaa gag 343  
 Asp Asp Leu Thr Asp Ala Ile Ile Cys Ala Arg Lys Ile Val Lys Glu  
 55 60 65 70  
 aca caa gga atg aat tat tgg caa ggc tgg aag aaa cat tgt gag ggc 391  
 Thr Gln Gly Met Asn Tyr Trp Gln Gly Trp Lys Lys His Cys Glu Gly

75 80 85  
 aga gac ctg tcc gac tgg aaa aaa ggc tgt gag gtt tcc taaactggaa 440  
 Arg Asp Leu Ser Asp Trp Lys Lys Gly Cys Glu Val Ser  
 90 95

ctggacccag gat 453

<210>116  
 <211>99  
 <212>PRT  
 <213> Homo sapiens

<400>116  
 Met Ala Tyr Tyr Glu Ser Gly Tyr Asn Thr Thr Ala Gln Thr Val Leu  
 1 5 10 15  
 Asp Asp Gly Ser Ile Asp Tyr Gly Ile Phe Gln Ile Asn Ser Phe Ala  
 20 25 30  
 Trp Cys Arg Arg Gly Lys Leu Lys Glu Asn Asn His Cys His Val Ala  
 35 40 45  
 Cys Ser Ala Leu Val Thr Asp Asp Leu Thr Asp Ala Ile Ile Cys Ala  
 50 55 60  
 Arg Lys Ile Val Lys Glu Thr Gln Gly Met Asn Tyr Trp Gln Gly Trp  
 65 70 75 80  
 Lys Lys His Cys Glu Gly Arg Asp Leu Ser Asp Trp Lys Lys Gly Cys  
 85 90 95  
 Glu Val Ser

<210>117  
 <211>712  
 <212>DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222>(35)..(668)  
 <400>117  
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 Met Ser Arg Val Leu Val  
 1 5  
 cct tgc cat gtg aaa ggc acc gta gcc ctg cag gtg ggg gac gta tgg 100  
 Pro Cys His Val Lys Gly Thr Val Ala Leu Gln Val Gly Asp Val Trp  
 10 15 20  
 acc tcc caa ggc cgg cct agt gtg ctg gtc att gat gtc acc ttc ccc 148  
 Thr Ser Gln Gly Arg Pro Ser Val Leu Val Ile Asp Val Thr Phe Pro  
 25 30 35

tgt gtc act ccg ttc gag ggg atc aca ttt aag aat tat tac aca gcg	196
Cys Val Thr Pro Phe Glu Gly Ile Thr Phe Lys Asn Tyr Tyr Thr Ala	
40 45 50	
ttt ttt gag cat cct gtc tgt cag cac acc tca gca cac aca ccg gcc	244
Phe Phe Glu His Pro Val Cys Gln His Thr Ser Ala His Thr Pro Ala	
55 60 65 70	
aag tgg gtg acc tgc ctg tgg gac tac tgt ctg atg ccc gac cca cac	292
Lys Trp Val Thr Cys Leu Trp Asp Tyr Cys Leu Met Pro Asp Pro His	
75 80 85	
agt gag gag gga gcc cag gag tat gtg tgc ctg ttc aag caa cag ata	340
Ser Glu Glu Gly Ala Gln Glu Tyr Val Ser Leu Phe Lys Gln Gln Ile	
90 95 100	
ctg tgt gac atg gcc aga ata tgc gag cta cac ctg att ctg cag cag	388
Leu Cys Asp Met Ala Arg Ile Ser Glu Leu His Leu Ile Leu Gln Gln	
105 110 115	
cca tca cca ctg tgg ctg tct ttc aca gtg gag gag ctg cag atc tat	436
Pro Ser Pro Leu Trp Leu Ser Phe Thr Val Glu Glu Leu Gln Ile Tyr	
120 125 130	
cag cag gga cca aag agc ccc tcc atg atc ttc ccc aag tgg ctc tcc	484
Gln Gln Gly Pro Lys Ser Pro Ser Met Ile Phe Pro Lys Trp Leu Ser	
135 140 145 150	
cac cca gtg ccc tgt gag caa cct gca ctc ctc cat gag ggt ctc cca	532
His Pro Val Pro Cys Glu Gln Pro Ala Leu Leu His Glu Gly Leu Pro	
155 160 165	
gac ccc agc agg gta tcc tct gag gtg cag cag atg tgg gca ctg aca	580
Asp Pro Ser Arg Val Ser Ser Glu Val Gln Gln Met Trp Ala Leu Thr	
170 175 180	
gag atg atc cgg gcc agt cac acc tcc gcg agg ata ggc cac ttt gat	628
Glu Met Ile Arg Ala Ser His Thr Ser Ala Arg Ile Gly His Phe Asp	
185 190 195	
gta gat ggc tgt tat gac ctg aac tta ctc tcc tac act tgagtgggtgg	677
Val Asp Gly Cys Tyr Asp Leu Asn Leu Leu Ser Tyr Thr	
200 205 210	
ctcctagcca agatgttggc ctttctgtgc ccaact	712

<210>118

<211>211

<212>PRT

<213> Homo sapiens

<400>118

Met	Ser	Arg	Val	Leu	Val	Pro	Cys	His	Val	Lys	Gly	Thr	Val	Ala	Leu
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					5				10					15	

Gln Val Gly Asp Val Trp Thr Ser Gln Gly Arg Pro Ser Val Leu Val  
                   20                  25                  30  
 Ile Asp Val Thr Phe Pro Cys Val Thr Pro Phe Glu Gly Ile Thr Phe  
                   35                  40                  45  
 Lys Asn Tyr Tyr Thr Ala Phe Phe Glu His Pro Val Cys Gln His Thr  
                   50                  55                  60  
 Ser Ala His Thr Pro Ala Lys Trp Val Thr Cys Leu Trp Asp Tyr Cys  
                   65                  70                  75                  80  
 Leu Met Pro Asp Pro His Ser Glu Glu Gly Ala Gln Glu Tyr Val Ser  
                   85                  90                  95  
 Leu Phe Lys Gln Gln Ile Leu Cys Asp Met Ala Arg Ile Ser Glu Leu  
                   100                  105                  110  
 His Leu Ile Leu Gln Gln Pro Ser Pro Leu Trp Leu Ser Phe Thr Val  
                   115                  120                  125  
 Glu Glu Leu Gln Ile Tyr Gln Gln Gly Pro Lys Ser Pro Ser Met Ile  
                   130                  135                  140  
 Phe Pro Lys Trp Leu Ser His Pro Val Pro Cys Glu Gln Pro Ala Leu  
                   145                  150                  155                  160  
 Leu His Glu Gly Leu Pro Asp Pro Ser Arg Val Ser Ser Glu Val Gln  
                   165                  170                  175  
 Gln Met Trp Ala Leu Thr Glu Met Ile Arg Ala Ser His Thr Ser Ala  
                   180                  185                  190  
 Arg Ile Gly His Phe Asp Val Asp Gly Cys Tyr Asp Leu Asn Leu Leu  
                   195                  200                  205  
 Ser Tyr Thr  
                   210

<210>119

<211>843

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(132)..(771)

<400>119

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ccatgtcccg cgtctagcac catgtcccg cgttctagcac catgtcccg 100

gttctagcac catgtccgc gttctagcac c atg tcc cgc gtt ttg gtg cct	152
Met Ser Arg Val Leu Val Pro	
5	
tgc cat gtg aaa ggc tcc gta gcc ctc cag gtg ggc gac gtg cgg acc	200
Cys His Val Lys Gly Ser Val Ala Leu Gln Val Gly Asp Val Arg Thr	
10 15 20	
tcc caa ggc cgg cct ggc gtg ctg gtc atc gat gtc acc ttc ccc agc	248
Ser Gln Gly Arg Pro Gly Val Leu Val Ile Asp Val Thr Phe Pro Ser	
25 30 35	
gtc gct ccc ttc gag ttg cag gaa atc acg ttt aag aat tac tac aca	296
Val Ala Pro Phe Glu Leu Gln Glu Ile Thr Phe Lys Asn Tyr Tyr Thr	
40 45 50 55	
gct ttt ttg agc atc cgt gtc cgt cag tac acc tca gca cac aca cct	344
Ala Phe Leu Ser Ile Arg Val Arg Gln Tyr Thr Ser Ala His Thr Pro	
60 65 70	
gcc aag tgg gtg acc tgc ctt cgg gac tac tgc ctg atg cct gac cca	392
Ala Lys Trp Val Thr Cys Leu Arg Asp Tyr Cys Leu Met Pro Asp Pro	
75 80 85	
cac agt gaa gag gga gcc cag gag tat gta tcg ctg ttc aag cat cag	440
His Ser Glu Glu Gly Ala Gln Glu Tyr Val Ser Leu Phe Lys His Gln	
90 95 100	
atg cta tgt gac atg gct aga ata tcg gag cta cgc ctg att ctg cgg	488
Met Leu Cys Asp Met Ala Arg Ile Ser Glu Leu Arg Leu Ile Leu Arg	
105 110 115	
cag cca tca cca ctg tgg ctg tct ttc aca gtg gag gag ctg cag atc	536
Gln Pro Ser Pro Leu Trp Leu Ser Phe Thr Val Glu Glu Leu Gln Ile	
120 125 130 135	
tat cag cag gga cca aag agc ccc tcc gtg acc ttt ccc aag tgg ctc	584
Tyr Gln Gln Gly Pro Lys Ser Pro Ser Val Thr Phe Pro Lys Trp Leu	
140 145 150	
tcc cac cca gtg ccc tgt gag caa cct gca ctc ctc cgt gag ggt ttc	632
Ser His Pro Val Pro Cys Glu Gln Pro Ala Leu Leu Arg Glu Gly Phe	
155 160 165	
cca gac ccc agc agg gta tcc tcc gag gtg cag cag atg tgg gca ctg	680
Pro Asp Pro Ser Arg Val Ser Ser Glu Val Gln Gln Met Trp Ala Leu	
170 175 180	
aca gag atg atc cgg gcc agt cac acc tcc gca agg atc ggc cgc ttt	728
Thr Glu Met Ile Arg Ala Ser His Thr Ser Ala Arg Ile Gly Arg Phe	
185 190 195	
gat gtg gat ggc tgt tat gac ctg acc ttg ctc tcc tac act	770
Asp Val Asp Gly Cys Tyr Asp Leu Thr Leu Leu Ser Tyr Thr	
200 205 210	
tgaatggttg ctcttagcca agatgttggc ctttttgtgg gcacagaaag	820

gccaacgcgg gacatggtgc tag

843

<210>120

<211>213

<212>PRT

<213> Homo sapiens

<400>120

Met Ser Arg Val Leu Val Pro Cys His Val Lys Gly Ser Val Ala Leu  
1 5 10 15

Gln Val Gly Asp Val Arg Thr Ser Gln Gly Arg Pro Gly Val Leu Val  
20 25 30

Ile Asp Val Thr Phe Pro Ser Val Ala Pro Phe Glu Leu Gln Glu Ile  
35 40 45

Thr Phe Lys Asn Tyr Tyr Thr Ala Phe Leu Ser Ile Arg Val Arg Gln  
50 55 60

Tyr Thr Ser Ala His Thr Pro Ala Lys Trp Val Thr Cys Leu Arg Asp  
65 70 75 80

Tyr Cys Leu Met Pro Asp Pro His Ser Glu Glu Gly Ala Gln Glu Tyr  
85 90 95

Val Ser Leu Phe Lys His Gln Met Leu Cys Asp Met Ala Arg Ile Ser  
100 105 110

Glu Leu Arg Leu Ile Leu Arg Gln Pro Ser Pro Leu Trp Leu Ser Phe  
115 120 125

Thr Val Glu Glu Leu Gln Ile Tyr Gln Gln Gly Pro Lys Ser Pro Ser  
130 135 140

Val Thr Phe Pro Lys Trp Leu Ser His Pro Val Pro Cys Glu Gln Pro  
145 150 155 160

Ala Leu Leu Arg Glu Gly Phe Pro Asp Pro Ser Arg Val Ser Ser Glu  
165 170 175

Val Gln Gln Met Trp Ala Leu Thr Glu Met Ile Arg Ala Ser His Thr  
180 185 190

Ser Ala Arg Ile Gly Arg Phe Asp Val Asp Gly Cys Tyr Asp Leu Thr  
195 200 205

Leu Leu Ser Tyr Thr  
210

<210>121

<211>520

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<212>DNA
<213> Homo sapiens

<220>
<221> CDS
<222>(3)..(216)
<400>121
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  Phe Ala Val Ser Ser Ala His Gln Gln Leu Tyr Trp Ser His Pro
    1             5             10             15

cga aaa ttc ggc cag ggt tct cgc tct tgt cgt gtc tgt tca aac cgg      95
Arg Lys Phe Gly Gln Gly Ser Arg Ser Cys Arg Val Cys Ser Asn Arg
          20             25             30

cac ggt ctg atc cgg aaa tat ggc ctc aat atg tgc cgc cag tgt ttc      143
His Gly Leu Ile Arg Lys Tyr Gly Leu Asn Met Cys Arg Gln Cys Phe
          35             40             45

cgt cag tac gcg aag gat atc ggt ttc att aag aaa gac ctg agc tgt      191
Arg Gln Tyr Ala Lys Asp Ile Gly Phe Ile Lys Lys Asp Leu Ser Cys
          50             55             60

ctt cct tgg cac tgc cta tgg agg tgacacccat ctctccatc                235
Leu Pro Trp His Cys Leu Trp Arg
          65             70

atggccatcc tgagaccgct cgcgaagccc aagatcatca aaaagagcac                285

caagttcact gggaaccagt cagactgata tgtcaaaatt aagggttaact                335

ggttgaaaca cagaggtatt gacaacaggg ttcatagaag gtttgagggc                385

cagatctatg cccaacattg gttatgggag aaacaaaaag acaaagcaca                435

tactgcccag tggcttctgg aagttcctgg tccacaacgt taaggagctg                485

gaagtactgc tggtgagcag aggagacagc aaatg                                520

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<210>122
<211>71
<212>PRT
<213> Homo sapiens

<400>122

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 Gly Leu Ile Arg Lys Tyr Gly Leu Asn Met Cys Arg Gln Cys Phe Arg  
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 Gln Tyr Ala Lys Asp Ile Gly Phe Ile Lys Lys Asp Leu Ser Cys Leu  
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 Pro Trp His Cys Leu Trp Arg  
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 tcaga atg acc gaa gaa gca tgc cga aca cgg agt cag aaa cga gcg 147  
 Met Thr Glu Glu Ala Cys Arg Thr Arg Ser Gln Lys Arg Ala  
 5 10  
 ctt gaa cgg gac cca aca gag gac gat gtg gag agc aag aaa ata aaa 195  
 Leu Glu Arg Asp Pro Thr Glu Asp Asp Val Glu Ser Lys Lys Ile Lys  
 15 20 25 30  
 atg gag aga gga ttg ttg gct tca gat tta aac act gac gga gac atg 243  
 Met Glu Arg Gly Leu Leu Ala Ser Asp Leu Asn Thr Asp Gly Asp Met  
 35 40 45  
 agg gtg aca cct gag ccg gga gca ggt cca acc caa gga ttg ctg agg 291  
 Arg Val Thr Pro Glu Pro Gly Ala Gly Pro Thr Gln Gly Leu Leu Arg  
 50 55 60  
 gca aca gag gcc acg gcc atg gcc atg ggc aga ggc gaa ggg ctg gtg 339  
 Ala Thr Glu Ala Thr Ala Met Ala Met Gly Arg Gly Glu Gly Leu Val  
 65 70 75  
 ggc gat ggg ccc gtg gac atg cgc acc tca cac agt gac atg aag tcc 387  
 Gly Asp Gly Pro Val Asp Met Arg Thr Ser His Ser Asp Met Lys Ser  
 80 85 90  
 gag agg aga ccc ccc tca cct gac gtg att gtg ctc tcc gac aac gag 435



Glu Arg Arg Pro Pro Ser Pro Asp Val Ile Val Leu Ser Asp Asn Glu	
95 100 105 110	
cag ccc tcg agc ccg aga gtg aat ggg ctg acc acg gtg gcc ttg aag	483
Gln Pro Ser Ser Pro Arg Val Asn Gly Leu Thr Thr Val Ala Leu Lys	
115 120 125	
gag act agc acc gag gcc ctc atg aaa agc agt cct gaa gaa cga gaa	531
Glu Thr Ser Thr Glu Ala Leu Met Lys Ser Ser Pro Glu Glu Arg Glu	
130 135 140	
agg atg atc aag cag ctg aag gaa gaa ttg agg tta gaa gaa gca aaa	579
Arg Met Ile Lys Gln Leu Lys Glu Glu Leu Arg Leu Glu Glu Ala Lys	
145 150 155	
ctc gtg ttg ttg aaa aag ttg cgg cag agt caa ata caa aag gaa gcc	627
Leu Val Leu Leu Lys Lys Leu Arg Gln Ser Gln Ile Gln Lys Glu Ala	
160 165 170	
acc gcc cag aag ccc aca ggt tct gtt ggg agc acc gtg acc acc cct	675
Thr Ala Gln Lys Pro Thr Gly Ser Val Gly Ser Thr Val Thr Thr Pro	
175 180 185 190	
ccc ccg ctt gtt cgg ggc act cag aac att cct gct ggc aag cca tca	723
Pro Pro Leu Val Arg Gly Thr Gln Asn Ile Pro Ala Gly Lys Pro Ser	
195 200 205	
ctc cag acc tct tca gct cgg atg ccc ggc agt gtc ata ccc ccg ccc	771
Leu Gln Thr Ser Ser Ala Arg Met Pro Gly Ser Val Ile Pro Pro Pro	
210 215 220	
ctg gtc cga ggt ggg cag cag gcg tcc tcg aag ctg ggg cca cag gcg	819
Leu Val Arg Gly Gly Gln Gln Ala Ser Ser Lys Leu Gly Pro Gln Ala	
225 230 235	
agc tca cag gtc gtc atg ccc cca ctc gtc agg ggg gct cag caa atc	867
Ser Ser Gln Val Val Met Pro Pro Leu Val Arg Gly Ala Gln Gln Ile	
240 245 250	
cac agc att agg caa cat tcc agc aca ggg cca ccg ccc ctc ctc ctg	915
His Ser Ile Arg Gln His Ser Ser Thr Gly Pro Pro Pro Leu Leu Leu	
255 260 265 270	
gcc ccc ccg gcg tcg gtg ccc agt gtg cag att cag gga cag agg atc	963
Ala Pro Arg Ala Ser Val Pro Ser Val Gln Ile Gln Gly Gln Arg Ile	
275 280 285	
atc cag cag ggc ctc atc cgc gtc gcc aat gtt ccc aac acc agc ctg	1011
Ile Gln Gln Gly Leu Ile Arg Val Ala Asn Val Pro Asn Thr Ser Leu	
290 295 300	
ctc gtc aac atc cca cag ccc acc cca gca tca ctg aag ggg aca aca	1059
Leu Val Asn Ile Pro Gln Pro Thr Pro Ala Ser Leu Lys Gly Thr Thr	
305 310 315	
gcc acc tcc gct cag gcc aac tcc acc ccc act agt gtg gcc tct gtg	1107
Ala Thr Ser Ala Gln Ala Asn Ser Thr Pro Thr Ser Val Ala Ser Val	

320	325	330	
gtc acc tct gcc gag tct cca gca agc cga cag gcg gcc gcc aag ctg			1155
Val Thr Ser Ala Glu Ser Pro Ala Ser Arg Gln Ala Ala Ala Lys Leu			
335	340	345	350
gcg ctg cgc aaa cag ctg gag aag acg cta ctc gag atc ccc cca ccc			1203
Ala Leu Arg Lys Gln Leu Glu Lys Thr Leu Leu Glu Ile Pro Pro Pro			
355	360		365
aag ccc cca gcc cca gag atg aac ttc ctg ccc agc gcc gcc aac aac			1251
Lys Pro Pro Ala Pro Glu Met Asn Phe Leu Pro Ser Ala Ala Asn Asn			
370	375		380
gag ttc atc tac ctg gtc ggc ctg gag gag gtg gtg cag aac cta ctg			1299
Glu Phe Ile Tyr Leu Val Gly Leu Glu Glu Val Val Gln Asn Leu Leu			
385	390		395
gag aca caa gca ggc agg atg tgc gcc gcc act gtg ctg tcc cgg gag			1347
Glu Thr Gln Ala Gly Arg Met Ser Ala Ala Thr Val Leu Ser Arg Glu			
400	405		410
ccc tac atg tgt gca cag tgc aag acg gac ttc acg tgc cgc tgg cgg			1395
Pro Tyr Met Cys Ala Gln Cys Lys Thr Asp Phe Thr Cys Arg Trp Arg			
415	420	425	430
gag gag aag agc ggc gcc atc atg tgt gag aac tgc atg aca acc aac			1443
Glu Glu Lys Ser Gly Ala Ile Met Cys Glu Asn Cys Met Thr Thr Asn			
435	440		445
cag aag aag gcg ctc aag gtg gag cac acc agc cgg ctg aag gcc gcc			1491
Gln Lys Lys Ala Leu Lys Val Glu His Thr Ser Arg Leu Lys Ala Ala			
450	455		460
ttt gtg aag gcg ctg cag cag gaa cag gag att gag cag cgg ctc ctg			1539
Phe Val Lys Ala Leu Gln Gln Glu Gln Glu Ile Glu Gln Arg Leu Leu			
465	470		475
cag cag ggc acg gcc cct gca cag gcc aag gcc gag ccc acc gct gcc			1587
Gln Gln Gly Thr Ala Pro Ala Gln Ala Lys Ala Glu Pro Thr Ala Ala			
480	485		490
cca cac ccc gtg ctg aag cag gcc tcc agc cag ctg tcc cgg ggt tcg			1635
Pro His Pro Val Leu Lys Gln Ala Ser Ser Gln Leu Ser Arg Gly Ser			
495	500	505	510
gcc acg acg ccc cga ggt gtc ctg cac acg ttc agt ccg tca ccc aaa			1683
Ala Thr Thr Pro Arg Gly Val Leu His Thr Phe Ser Pro Ser Pro Lys			
515	520		525
ctg cag aac tca gcc tcg gcc aca gcc ctg gtc agc agg acc ggc aga			1731
Leu Gln Asn Ser Ala Ser Ala Thr Ala Leu Val Ser Arg Thr Gly Arg			
530	535		540
cat tct gag aga acc gtg agc gcc ggc aag ggc agc gcc acc tcc aac			1779
His Ser Glu Arg Thr Val Ser Ala Gly Lys Gly Ser Ala Thr Ser Asn			
545	550		555

tgg aag aag acg ccc ctc agc aca ggc ggg acc ctt gcg ttt gtc agc 1827  
 Trp Lys Lys Thr Pro Leu Ser Thr Gly Gly Thr Leu Ala Phe Val Ser  
 560 565 570

cca agc ctg gcg gtg cac aag agc tcc tcg gcc gtg gac cgc cag cga 1875  
 Pro Ser Leu Ala Val His Lys Ser Ser Ser Ala Val Asp Arg Gln Arg  
 575 580 585 590

gag tac ctc ctg gac atg atc cca ccc cgc tcc atc ccc cag tca gcc 1923  
 Glu Tyr Leu Leu Asp Met Ile Pro Pro Arg Ser Ile Pro Gln Ser Ala  
 595 600 605

acg tgg aaa tagtgcgagc caggccccgt ggaagacggg ctcctcctc 1972  
 Thr Trp Lys

ccccacctgg cccctggtct agaaggaccc actgcaccac cctccgctgg 2022

ctcgggaaga caccgtg 2039

<210>124  
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 <212>PRT  
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Arg Gly Leu Leu Ala Ser Asp Leu Asn Thr Asp Gly Asp Met Arg Val  
 35 40 45

Thr Pro Glu Pro Gly Ala Gly Pro Thr Gln Gly Leu Leu Arg Ala Thr  
 50 55 60

Glu Ala Thr Ala Met Ala Met Gly Arg Gly Glu Gly Leu Val Gly Asp  
 65 70 75 80

Gly Pro Val Asp Met Arg Thr Ser His Ser Asp Met Lys Ser Glu Arg  
 85 90 95

Arg Pro Pro Ser Pro Asp Val Ile Val Leu Ser Asp Asn Glu Gln Pro  
 100 105 110

Ser Ser Pro Arg Val Asn Gly Leu Thr Thr Val Ala Leu Lys Glu Thr  
 115 120 125

Ser Thr Glu Ala Leu Met Lys Ser Ser Pro Glu Glu Arg Glu Arg Met  
 130 135 140

Ile	Lys	Gln	Leu	Lys	Glu	Glu	Leu	Arg	Leu	Glu	Glu	Ala	Lys	Leu	Val	145	150	155	160
Leu	Leu	Lys	Lys	Leu	Arg	Gln	Ser	Gln	Ile	Gln	Lys	Glu	Ala	Thr	Ala	165	170	175	
Gln	Lys	Pro	Thr	Gly	Ser	Val	Gly	Ser	Thr	Val	Thr	Thr	Pro	Pro	Pro	180	185	190	
Leu	Val	Arg	Gly	Thr	Gln	Asn	Ile	Pro	Ala	Gly	Lys	Pro	Ser	Leu	Gln	195	200	205	
Thr	Ser	Ser	Ala	Arg	Met	Pro	Gly	Ser	Val	Ile	Pro	Pro	Pro	Leu	Val	210	215	220	
Arg	Gly	Gly	Gln	Gln	Ala	Ser	Ser	Lys	Leu	Gly	Pro	Gln	Ala	Ser	Ser	225	230	235	240
Gln	Val	Val	Met	Pro	Pro	Leu	Val	Arg	Gly	Ala	Gln	Gln	Ile	His	Ser	245	250	255	
Ile	Arg	Gln	His	Ser	Ser	Thr	Gly	Pro	Pro	Pro	Leu	Leu	Leu	Ala	Pro	260	265	270	
Arg	Ala	Ser	Val	Pro	Ser	Val	Gln	Ile	Gln	Gly	Gln	Arg	Ile	Ile	Gln	275	280	285	
Gln	Gly	Leu	Ile	Arg	Val	Ala	Asn	Val	Pro	Asn	Thr	Ser	Leu	Leu	Val	290	295	300	
Asn	Ile	Pro	Gln	Pro	Thr	Pro	Ala	Ser	Leu	Lys	Gly	Thr	Thr	Ala	Thr	305	310	315	320
Ser	Ala	Gln	Ala	Asn	Ser	Thr	Pro	Thr	Ser	Val	Ala	Ser	Val	Val	Thr	325	330	335	
Ser	Ala	Glu	Ser	Pro	Ala	Ser	Arg	Gln	Ala	Ala	Ala	Lys	Leu	Ala	Leu	340	345	350	
Arg	Lys	Gln	Leu	Glu	Lys	Thr	Leu	Leu	Glu	Ile	Pro	Pro	Pro	Lys	Pro	355	360	365	
Pro	Ala	Pro	Glu	Met	Asn	Phe	Leu	Pro	Ser	Ala	Ala	Asn	Asn	Glu	Phe	370	375	380	
Ile	Tyr	Leu	Val	Gly	Leu	Glu	Glu	Val	Val	Gln	Asn	Leu	Leu	Glu	Thr	385	390	395	400
Gln	Ala	Gly	Arg	Met	Ser	Ala	Ala	Thr	Val	Leu	Ser	Arg	Glu	Pro	Tyr	405	410	415	
Met	Cys	Ala	Gln	Cys	Lys	Thr	Asp	Phe	Thr	Cys	Arg	Trp	Arg	Glu	Glu	420	425	430	
Lys	Ser	Gly	Ala	Ile	Met	Cys	Glu	Asn	Cys	Met	Thr	Thr	Asn	Gln	Lys	435	440	445	

Lys Ala Leu Lys Val Glu His Thr Ser Arg Leu Lys Ala Ala Phe Val  
 450 455 460  
 Lys Ala Leu Gln Gln Glu Gln Glu Ile Glu Gln Arg Leu Leu Gln Gln  
 465 470 475 480  
 Gly Thr Ala Pro Ala Gln Ala Lys Ala Glu Pro Thr Ala Ala Pro His  
 485 490 495  
 Pro Val Leu Lys Gln Ala Ser Ser Gln Leu Ser Arg Gly Ser Ala Thr  
 500 505 510  
 Thr Pro Arg Gly Val Leu His Thr Phe Ser Pro Ser Pro Lys Leu Gln  
 515 520 525  
 Asn Ser Ala Ser Ala Thr Ala Leu Val Ser Arg Thr Gly Arg His Ser  
 530 535 540  
 Glu Arg Thr Val Ser Ala Gly Lys Gly Ser Ala Thr Ser Asn Trp Lys  
 545 550 555 560  
 Lys Thr Pro Leu Ser Thr Gly Gly Thr Leu Ala Phe Val Ser Pro Ser  
 565 570 575  
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 595 600 605

Lys

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 <212>DNA  
 <213> Homo sapiens

<220>  
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 <222>(13)..(1405)  
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 Lys Trp Gly Ser Lys Pro Ser Asn Ser Lys Ser Glu Thr Thr Leu Glu  
 15 20 25  
 aaa tta aag gga gaa att gca cac tta aag aca tca gtg gat gaa atc 144  
 Lys Leu Lys Gly Glu Ile Ala His Leu Lys Thr Ser Val Asp Glu Ile  
 30 35 40  
 aca agt ggg aaa gga aag ctg act gat aaa gag aga cac aga ctt ttg 192  
 Thr Ser Gly Lys Gly Lys Leu Thr Asp Lys Glu Arg His Arg Leu Leu

45	50	55	60	
gag aaa att cga gtc ctt	gag gct gag aag gag aag aat gct tat caa			240
Glu Lys Ile Arg Val Leu Glu Ala Glu Lys Glu Lys Asn Ala Tyr Gln				
65	70	75		
ctc aca gag aag gac aaa gaa ata cag cga ctg aga gac caa ctg aag				288
Leu Thr Glu Lys Asp Lys Glu Ile Gln Arg Leu Arg Asp Gln Leu Lys				
80	85	90		
gcc aga tat agt act acc aca ttg ctt gaa cag ctg gaa gag aca acg				336
Ala Arg Tyr Ser Thr Thr Thr Leu Leu Glu Gln Leu Glu Glu Thr Thr				
95	100	105		
aga gaa gga gaa agg agg gag cag gtg ttg aaa gcc tta tct gaa gag				384
Arg Glu Gly Glu Arg Arg Glu Gln Val Leu Lys Ala Leu Ser Glu Glu				
110	115	120		
aaa gac gta ttg aaa caa cag ttg tct gct gca acc tca cga att gct				432
Lys Asp Val Leu Lys Gln Gln Leu Ser Ala Ala Thr Ser Arg Ile Ala				
125	130	135	140	
gaa ctt gaa agc aaa acc aat aca ctc cgt tta tca cag act gtg gct				480
Glu Leu Glu Ser Lys Thr Asn Thr Leu Arg Leu Ser Gln Thr Val Ala				
145	150	155		
cca aac tgc ttc aac tca tca ata aat aat att cat gaa atg gaa ata				528
Pro Asn Cys Phe Asn Ser Ser Ile Asn Asn Ile His Glu Met Glu Ile				
160	165	170		
cag ctg aaa gat gct ctg gag aaa aat cag cag tgg ctc gtg tat gat				576
Gln Leu Lys Asp Ala Leu Glu Lys Asn Gln Gln Trp Leu Val Tyr Asp				
175	180	185		
cag cag cgg gaa gtc tat gta aaa gga ctt tta gca aag atc ttt gag				624
Gln Gln Arg Glu Val Tyr Val Lys Gly Leu Leu Ala Lys Ile Phe Glu				
190	195	200		
ttg gaa aag aaa acg gaa aca gct gct cat tca ctc cca cag cag aca				672
Leu Glu Lys Lys Thr Glu Thr Ala Ala His Ser Leu Pro Gln Gln Thr				
205	210	215	220	
aaa aag cct gaa tca gaa ggt tat ctt caa gaa gag aag cag aaa tgt				720
Lys Lys Pro Glu Ser Glu Gly Tyr Leu Gln Glu Glu Lys Gln Lys Cys				
225	230	235		
tac aac gat ctc ttg gca agt gca aaa aaa gat ctt gag gtt gaa cga				768
Tyr Asn Asp Leu Leu Ala Ser Ala Lys Lys Asp Leu Glu Val Glu Arg				
240	245	250		
caa acc ata act cag ctg agt ttt gaa ctg agt gaa ttt cga aga aaa				816
Gln Thr Ile Thr Gln Leu Ser Phe Glu Leu Ser Glu Phe Arg Arg Lys				
255	260	265		
tat gaa gaa acc caa aaa gaa gtt cac aat tta aat cag ctg ttg tat				864
Tyr Glu Glu Thr Gln Lys Glu Val His Asn Leu Asn Gln Leu Leu Tyr				
270	275	280		

tca caa aga agg gca gat gtg caa cat ctg gaa gat gat agg cat aaa 912  
Ser Gln Arg Arg Ala Asp Val Gln His Leu Glu Asp Asp Arg His Lys  
285 290 295 300  
  
aca gag aag ata caa aaa ctc agg gaa gag aat gat att gct agg gga 960  
Thr Glu Lys Ile Gln Lys Leu Arg Glu Glu Asn Asp Ile Ala Arg Gly  
305 310 315  
  
aaa ctt gaa gaa gag aag aag aga tcc gaa gag ctc tta tct cag gtc 1008  
Lys Leu Glu Glu Glu Lys Lys Arg Ser Glu Glu Leu Leu Ser Gln Val  
320 325 330  
  
cag tct ctt tac aca tct ctg cta aag cag caa gaa gaa caa aca agg 1056  
Gln Ser Leu Tyr Thr Ser Leu Leu Lys Gln Gln Glu Glu Gln Thr Arg  
335 340 345  
  
gta gct ctg ttg gaa caa cag atg cag gca tgt act tta gac ttt gaa 1104  
Val Ala Leu Leu Glu Gln Gln Met Gln Ala Cys Thr Leu Asp Phe Glu  
350 355 360  
  
aat gaa aaa ctc gac cgt caa cat gtg cag cat caa ttg cat gta att 1152  
Asn Glu Lys Leu Asp Arg Gln His Val Gln His Gln Leu His Val Ile  
365 370 375 380  
  
ctt aag gag ctc cga aaa gca aga aaa aat ata aca cag ttg gaa tcc 1200  
Leu Lys Glu Leu Arg Lys Ala Arg Lys Asn Ile Thr Gln Leu Glu Ser  
385 390 395  
  
ttg aaa cag ctt cat gag ttt gcc atc aca gag cca tta gtc act ttc 1248  
Leu Lys Gln Leu His Glu Phe Ala Ile Thr Glu Pro Leu Val Thr Phe  
400 405 410  
  
caa gga gag act gaa aac aga gaa aaa gtt gcc gcc tca cca aaa agt 1296  
Gln Gly Glu Thr Glu Asn Arg Glu Lys Val Ala Ala Ser Pro Lys Ser  
415 420 425  
  
ccc act gct gca ctc aat gga agc ctg gtg gaa tgt ccc aag tgc aat 1344  
Pro Thr Ala Ala Leu Asn Gly Ser Leu Val Glu Cys Pro Lys Cys Asn  
430 435 440  
  
ata cag tat cca gcc act gag cat cgc gat ctg ctt gtc cat gtg gaa 1392  
Ile Gln Tyr Pro Ala Thr Glu His Arg Asp Leu Leu Val His Val Glu  
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Tyr Cys Ser Lys

<210>126

<211>464

<212>PRT

<213> Homo sapiens

<400>126

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 Glu Ile Ala His Leu Lys Thr Ser Val Asp Glu Ile Thr Ser Gly Lys  
 35 40 45  
 Gly Lys Leu Thr Asp Lys Glu Arg His Arg Leu Leu Glu Lys Ile Arg  
 50 55 60  
 Val Leu Glu Ala Glu Lys Glu Lys Asn Ala Tyr Gln Leu Thr Glu Lys  
 65 70 75 80  
 Asp Lys Glu Ile Gln Arg Leu Arg Asp Gln Leu Lys Ala Arg Tyr Ser  
 85 90 95  
 Thr Thr Thr Leu Leu Glu Gln Leu Glu Glu Thr Thr Arg Glu Gly Glu  
 100 105 110  
 Arg Arg Glu Gln Val Leu Lys Ala Leu Ser Glu Glu Lys Asp Val Leu  
 115 120 125  
 Lys Gln Gln Leu Ser Ala Ala Thr Ser Arg Ile Ala Glu Leu Glu Ser  
 130 135 140  
 Lys Thr Asn Thr Leu Arg Leu Ser Gln Thr Val Ala Pro Asn Cys Phe  
 145 150 155 160  
 Asn Ser Ser Ile Asn Asn Ile His Glu Met Glu Ile Gln Leu Lys Asp  
 165 170 175  
 Ala Leu Glu Lys Asn Gln Gln Trp Leu Val Tyr Asp Gln Gln Arg Glu  
 180 185 190  
 Val Tyr Val Lys Gly Leu Leu Ala Lys Ile Phe Glu Leu Glu Lys Lys  
 195 200 205  
 Thr Glu Thr Ala Ala His Ser Leu Pro Gln Gln Thr Lys Lys Pro Glu  
 210 215 220  
 Ser Glu Gly Tyr Leu Gln Glu Glu Lys Gln Lys Cys Tyr Asn Asp Leu  
 225 230 235 240  
 Leu Ala Ser Ala Lys Lys Asp Leu Glu Val Glu Arg Gln Thr Ile Thr  
 245 250 255  
 Gln Leu Ser Phe Glu Leu Ser Glu Phe Arg Arg Lys Tyr Glu Glu Thr  
 260 265 270  
 Gln Lys Glu Val His Asn Leu Asn Gln Leu Leu Tyr Ser Gln Arg Arg  
 275 280 285  
 Ala Asp Val Gln His Leu Glu Asp Asp Arg His Lys Thr Glu Lys Ile  
 290 295 300  
 Gln Lys Leu Arg Glu Glu Asn Asp Ile Ala Arg Gly Lys Leu Glu Glu  
 305 310 315 320



Glu Lys Lys Arg Ser Glu Glu Leu Leu Ser Gln Val Gln Ser Leu Tyr  
 325 330 335  
 Thr Ser Leu Leu Lys Gln Gln Glu Glu Gln Thr Arg Val Ala Leu Leu  
 340 345 350  
 Glu Gln Gln Met Gln Ala Cys Thr Leu Asp Phe Glu Asn Glu Lys Leu  
 355 360 365  
 Asp Arg Gln His Val Gln His Gln Leu His Val Ile Leu Lys Glu Leu  
 370 375 380  
 Arg Lys Ala Arg Lys Asn Ile Thr Gln Leu Glu Ser Leu Lys Gln Leu  
 385 390 395 400  
 His Glu Phe Ala Ile Thr Glu Pro Leu Val Thr Phe Gln Gly Glu Thr  
 405 410 415  
 Glu Asn Arg Glu Lys Val Ala Ala Ser Pro Lys Ser Pro Thr Ala Ala  
 420 425 430  
 Leu Asn Gly Ser Leu Val Glu Cys Pro Lys Cys Asn Ile Gln Tyr Pro  
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 Ala Thr Glu His Arg Asp Leu Leu Val His Val Glu Tyr Cys Ser Lys  
 450 455 460

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<211>3955

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(67)..(3868)

<400>127

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 Met Met Met Asn Val Pro Gly Gly Gly Ala Ala  
 5 10

gcg gtg atg atg acg ggc tac aat aat ggt cgc tgt ccc cgg aat tct 147  
 Ala Val Met Met Thr Gly Tyr Asn Asn Gly Arg Cys Pro Arg Asn Ser  
 15 20 25

ctc tac agt gac tgc att att gag gag aag acg gtg gtc ctg cag aaa 195  
 Leu Tyr Ser Asp Cys Ile Ile Glu Glu Lys Thr Val Val Leu Gln Lys  
 30 35 40

aaa gac aat gag ggc ttt gga ttc gtg ctt cga ggg gcc aaa gct gac 243  
 Lys Asp Asn Glu Gly Phe Gly Phe Val Leu Arg Gly Ala Lys Ala Asp  
 45 50 55

aca ccc att gaa gaa ttc aca cca aca ccg gct ttc cca gcc cta cag	291
Thr Pro Ile Glu Glu Phe Thr Pro Thr Pro Ala Phe Pro Ala Leu Gln	
60 65 70 75	
tac ctg gag tcc gtg gat gaa ggt ggg gtg gcg tgg caa gcc gga cta	339
Tyr Leu Glu Ser Val Asp Glu Gly Gly Val Ala Trp Gln Ala Gly Leu	
80 85 90	
agg acc ggg gac ttc ttg att gag gtt aac aat gag aat gtt gtc aaa	387
Arg Thr Gly Asp Phe Leu Ile Glu Val Asn Asn Glu Asn Val Val Lys	
95 100 105	
gtc ggc cac agg cag gtg gtg aac atg atc cgg cag gga ggg aat cac	435
Val Gly His Arg Gln Val Val Asn Met Ile Arg Gln Gly Gly Asn His	
110 115 120	
ctg gtc ctt aag gtg gtc acg gtg acc agg aat ctg gac ccc gac gac	483
Leu Val Leu Lys Val Val Thr Val Thr Arg Asn Leu Asp Pro Asp Asp	
125 130 135	
acc gcc agg aag aaa gct ccc ccg cct cca aag cgg gca ccg acc aca	531
Thr Ala Arg Lys Lys Ala Pro Pro Pro Pro Lys Arg Ala Pro Thr Thr	
140 145 150 155	
gcc ctc acc ctg cgc tcc aag tcc atg acc tcg gag ctg gag gag ctc	579
Ala Leu Thr Leu Arg Ser Lys Ser Met Thr Ser Glu Leu Glu Glu Leu	
160 165 170	
gat aaa ccc gag gag ata gtc ccg gcc tcc aag ccc tcc cgc gct gct	627
Asp Lys Pro Glu Glu Ile Val Pro Ala Ser Lys Pro Ser Arg Ala Ala	
175 180 185	
gag aac atg gct gtg gaa ccg agg gtg gcg acc atc aag cag cgg ccc	675
Glu Asn Met Ala Val Glu Pro Arg Val Ala Thr Ile Lys Gln Arg Pro	
190 195 200	
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Thr Val Pro Gly Ser Pro Lys Ala Pro Phe Leu Gly Ile Pro Arg Gly	
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Asp	Ser	Glu	Asp	Leu	Tyr	Ser	Arg	Asn	Ala	Gly	Pro	Gln	Ala	Asn	Phe		
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Val	Ser	Ser	Pro	Phe	Ala	Ala	Ala	Ile	Ala	Gly	Ala	Val	Arg	Asp	Arg		
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 Gly Gln Glu Ala Leu Val Gly Pro Ser Leu Gln Pro Gln Glu Ala Ala  
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agg gaa gct gat gct gta gca cct ggg tac gct cag gga gca aac ctg 928  
 Arg Glu Ala Asp Ala Val Ala Pro Gly Tyr Ala Gln Gly Ala Asn Leu  
 160 165 170

gtt aag att gga gag cga ccc tgg agg ttg gtg cgg ggt ccg gga gtg 976  
 Val Lys Ile Gly Glu Arg Pro Trp Arg Leu Val Arg Gly Pro Gly Val  
 175 180 185

cga gcc ggg ggc cca gac ttc ctg cag ccc agc tcc agg gag agc aac 1024  
 Arg Ala Gly Gly Pro Asp Phe Leu Gln Pro Ser Ser Arg Glu Ser Asn  
 190 195 200

att agg atc tac agc gag agc gcc ccc tcc tgg ctg agc aaa gat gac 1072  
 Ile Arg Ile Tyr Ser Glu Ser Ala Pro Ser Trp Leu Ser Lys Asp Asp  
 205 210 215 220

atc cga aga atg cga ctc ttg gcg gac agc gca gtg gca ggg ctc cgg 1120  
 Ile Arg Arg Met Arg Leu Leu Ala Asp Ser Ala Val Ala Gly Leu Arg  
 225 230 235

cct gtg tcc tct agg agc gga gcc cgt ttg ctg gtg ctg gag ggg ggc 1168  
 Pro Val Ser Ser Arg Ser Gly Ala Arg Leu Leu Val Leu Glu Gly Gly  
 240 245 250

gca cct ggc gct gtg ctc cgc tgt ggc cct agc ccc tgt ggg ctt ctc 1216  
 Ala Pro Gly Ala Val Leu Arg Cys Gly Pro Ser Pro Cys Gly Leu Leu  
 255 260 265

aag cag ccc ttg gac atg agt gag gtg ttt gcc ttc cac cta gac agg 1264  
 Lys Gln Pro Leu Asp Met Ser Glu Val Phe Ala Phe His Leu Asp Arg  
 270 275 280

atc ctg ggg ctc aac agg acc ctg ccg tct gtg agc agg aaa gca gag 1312  
 Ile Leu Gly Leu Asn Arg Thr Leu Pro Ser Val Ser Arg Lys Ala Glu  
 285 290 295 300

ttc atc caa gat ggc cgc cca tgc ccc atc att ctt tgg gat gca tct 1360  
 Phe Ile Gln Asp Gly Arg Pro Cys Pro Ile Ile Leu Trp Asp Ala Ser  
 305 310 315

tta tct tca gca agt aat gac acc cat tct tct gtt aag ctc acc tgg 1408  
 Leu Ser Ser Ala Ser Asn Asp Thr His Ser Ser Val Lys Leu Thr Trp  
 320 325 330

gga act tat cag cag ttg ctg aaa cag aaa tgc tgg cag aat ggc cga 1456

Gly Thr Tyr Gln Gln Leu Leu Lys Gln Lys Cys Trp Gln Asn Gly Arg  
 335 340 345  
 gta ccc aag cct gaa tca ggt tgt act gaa ata cat cat cat gag tgg 1504  
 Val Pro Lys Pro Glu Ser Gly Cys Thr Glu Ile His His His Glu Trp  
 350 355 360  
 tcc aag atg gca ctc ttt gat ttt ttg tta cag att tat aat cgc tta 1552  
 Ser Lys Met Ala Leu Phe Asp Phe Leu Leu Gln Ile Tyr Asn Arg Leu  
 365 370 375 380  
 gat aca aat tgc tgt gga ttc aga cct cgc aag gaa gat gcc tgt gta 1600  
 Asp Thr Asn Cys Cys Gly Phe Arg Pro Arg Lys Glu Asp Ala Cys Val  
 385 390 395  
 cag aat gga ttg agg cca aaa tgt gat gac caa ggt tct gcg gct cta 1648  
 Gln Asn Gly Leu Arg Pro Lys Cys Asp Asp Gln Gly Ser Ala Ala Leu  
 400 405 410  
 gca cac att atc cag cga aag cat gac cca agg cat ttg gtt ttt ata 1696  
 Ala His Ile Ile Gln Arg Lys His Asp Pro Arg His Leu Val Phe Ile  
 415 420 425  
 gac aac aag ggt ttc ttt gac agg agt gaa gat aac tta aac ttc aaa 1744  
 Asp Asn Lys Gly Phe Phe Asp Arg Ser Glu Asp Asn Leu Asn Phe Lys  
 430 435 440  
 ttg tta gaa ggc atc aaa gag ttt cca gct tct gca gtt tct gtt ttg 1792  
 Leu Leu Glu Gly Ile Lys Glu Phe Pro Ala Ser Ala Val Ser Val Leu  
 445 450 455 460  
 aag agc cag cac tta cgg cag aaa ctt ctt cag tct ctg ttt ctt gat 1840  
 Lys Ser Gln His Leu Arg Gln Lys Leu Leu Gln Ser Leu Phe Leu Asp  
 465 470 475  
 aaa gtg tat tgg gaa agt caa gga ggt aga caa gga att gaa aag ctt 1888  
 Lys Val Tyr Trp Glu Ser Gln Gly Gly Arg Gln Gly Ile Glu Lys Leu  
 480 485 490  
 atc gat gta ata gaa cac aga gcc aaa att ctt atc acc tat atc aat 1936  
 Ile Asp Val Ile Glu His Arg Ala Lys Ile Leu Ile Thr Tyr Ile Asn  
 495 500 505  
 gca cac ggg gtc aaa gta tta cct atg aat gaa tgacaaaaga 1979  
 Ala His Gly Val Lys Val Leu Pro Met Asn Glu  
 510 515  
 atcttctggc taggggtgta gatatatatta tgcatttttg gttttgtttt 2029  
 taaatcaagc acatcaacct caagcccggt tagcaatgag 2069

<210>130

<211>519

<212>PRT

<213> Homo sapiens

<400>130

Met Thr Cys Pro Asp Lys Pro Gly Gln Leu Ile Asn Trp Phe Ile Cys  
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Ser Leu Cys Val Pro Arg Val Arg Lys Leu Trp Ser Ser Arg Arg Pro  
20 25 30  
Arg Thr Arg Arg Asn Leu Leu Leu Gly Thr Ala Cys Ala Ile Tyr Leu  
35 40 45  
Gly Phe Leu Val Ser Gln Val Gly Arg Ala Ser Leu Gln His Gly Gln  
50 55 60  
Ala Ala Glu Lys Gly Pro His Arg Ser Arg Asp Thr Ala Glu Pro Ser  
65 70 75 80  
Phe Pro Glu Ile Pro Leu Asp Gly Thr Leu Ala Pro Pro Glu Ser Gln  
85 90 95  
Gly Asn Gly Ser Thr Leu Gln Pro Asn Val Val Tyr Ile Thr Leu Arg  
100 105 110  
Ser Glu Arg Ser Lys Pro Ala Asn Ile Arg Gly Thr Val Lys Pro Lys  
115 120 125  
Arg Arg Lys Lys His Ala Val Ala Ser Ala Ala Pro Gly Gln Glu Ala  
130 135 140  
Leu Val Gly Pro Ser Leu Gln Pro Gln Glu Ala Ala Arg Glu Ala Asp  
145 150 155 160  
Ala Val Ala Pro Gly Tyr Ala Gln Gly Ala Asn Leu Val Lys Ile Gly  
165 170 175  
Glu Arg Pro Trp Arg Leu Val Arg Gly Pro Gly Val Arg Ala Gly Gly  
180 185 190  
Pro Asp Phe Leu Gln Pro Ser Ser Arg Glu Ser Asn Ile Arg Ile Tyr  
195 200 205  
Ser Glu Ser Ala Pro Ser Trp Leu Ser Lys Asp Asp Ile Arg Arg Met  
210 215 220  
Arg Leu Leu Ala Asp Ser Ala Val Ala Gly Leu Arg Pro Val Ser Ser  
225 230 235 240  
Arg Ser Gly Ala Arg Leu Leu Val Leu Glu Gly Gly Ala Pro Gly Ala  
245 250 255  
Val Leu Arg Cys Gly Pro Ser Pro Cys Gly Leu Leu Lys Gln Pro Leu  
260 265 270  
Asp Met Ser Glu Val Phe Ala Phe His Leu Asp Arg Ile Leu Gly Leu  
275 280 285

Asn Arg Thr Leu Pro Ser Val Ser Arg Lys Ala Glu Phe Ile Gln Asp  
 290 295 300  
 Gly Arg Pro Cys Pro Ile Ile Leu Trp Asp Ala Ser Leu Ser Ser Ala  
 305 310 315 320  
 Ser Asn Asp Thr His Ser Ser Val Lys Leu Thr Trp Gly Thr Tyr Gln  
 325 330 335  
 Gln Leu Leu Lys Gln Lys Cys Trp Gln Asn Gly Arg Val Pro Lys Pro  
 340 345 350  
 Glu Ser Gly Cys Thr Glu Ile His His His Glu Trp Ser Lys Met Ala  
 355 360 365  
 Leu Phe Asp Phe Leu Leu Gln Ile Tyr Asn Arg Leu Asp Thr Asn Cys  
 370 375 380  
 Cys Gly Phe Arg Pro Arg Lys Glu Asp Ala Cys Val Gln Asn Gly Leu  
 385 390 395 400  
 Arg Pro Lys Cys Asp Asp Gln Gly Ser Ala Ala Leu Ala His Ile Ile  
 405 410 415  
 Gln Arg Lys His Asp Pro Arg His Leu Val Phe Ile Asp Asn Lys Gly  
 420 425 430  
 Phe Phe Asp Arg Ser Glu Asp Asn Leu Asn Phe Lys Leu Leu Glu Gly  
 435 440 445  
 Ile Lys Glu Phe Pro Ala Ser Ala Val Ser Val Leu Lys Ser Gln His  
 450 455 460  
 Leu Arg Gln Lys Leu Leu Gln Ser Leu Phe Leu Asp Lys Val Tyr Trp  
 465 470 475 480  
 Glu Ser Gln Gly Gly Arg Gln Gly Ile Glu Lys Leu Ile Asp Val Ile  
 485 490 495  
 Glu His Arg Ala Lys Ile Leu Ile Thr Tyr Ile Asn Ala His Gly Val  
 500 505 510  
 Lys Val Leu Pro Met Asn Glu  
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 <212>DNA  
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<220>  
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Met Thr Cys Pro Asp	
5	
aag ccg ggg cag ctc ata aac tgg ttc atc tgc tcc ctg tgc gtc ccg	152
Lys Pro Gly Gln Leu Ile Asn Trp Phe Ile Cys Ser Leu Cys Val Pro	
10 15 20	
cgg gtg cgt aag ctc tgg agc agc cgg cgt cca agg acc cgg aga aac	200
Arg Val Arg Lys Leu Trp Ser Ser Arg Arg Pro Arg Thr Arg Arg Asn	
25 30 35	
ctt ctg ctg ggc act gcg tgt gcc atc tac ttg ggc ttc ctg gtg agc	248
Leu Leu Leu Gly Thr Ala Cys Ala Ile Tyr Leu Gly Phe Leu Val Ser	
40 45 50	
cag gtg ggg agg gcc tct ctc cag cat gga cag gcg gct gag aag ggg	296
Gln Val Gly Arg Ala Ser Leu Gln His Gly Gln Ala Ala Glu Lys Gly	
55 60 65	
cca cat cgc agc cgc gac acc gcc gag cca tcc ttc cct gag ata ccc	344
Pro His Arg Ser Arg Asp Thr Ala Glu Pro Ser Phe Pro Glu Ile Pro	
70 75 80 85	
ctg gat ggt acc ctg gcc cct cca gag tcc cag ggc aat ggg tcc act	392
Leu Asp Gly Thr Leu Ala Pro Pro Glu Ser Gln Gly Asn Gly Ser Thr	
90 95 100	
ctg cag ccc aat gtg gtg tac att acc cta cgc tcc aag cgc agc aag	440
Leu Gln Pro Asn Val Val Tyr Ile Thr Leu Arg Ser Lys Arg Ser Lys	
105 110 115	
ccg gcc aat atc cgt ggc acc gtg aag ccc aag cgc agg aaa aag cat	488
Pro Ala Asn Ile Arg Gly Thr Val Lys Pro Lys Arg Arg Lys Lys His	
120 125 130	
gca gtg gca tcg gct gcc caa ggg cag gag gct ttg gtc gga cca tcc	536
Ala Val Ala Ser Ala Ala Gln Gly Gln Glu Ala Leu Val Gly Pro Ser	
135 140 145	
ctt cag ccg caa gaa gcg gca agg gaa gct gat gct gta gca ctg ggt	584
Leu Gln Pro Gln Glu Ala Ala Arg Glu Ala Asp Ala Val Ala Leu Gly	
150 155 160 165	
acg ctc agg agc aaa ctg gtt aag atg gag agc gac cct gaa ggt ggt	632
Thr Leu Arg Ser Lys Leu Val Lys Met Glu Ser Asp Pro Glu Gly Gly	
170 175 180	
gcg ggg tcg gga gtg cga gcc ggg ggc cca gac ttc ctg cag ccc agc	680
Ala Gly Ser Gly Val Arg Ala Gly Gly Pro Asp Phe Leu Gln Pro Ser	
185 190 195	
tcc agg gag agc aac att agg atc tac agc gag agc gcc ccc tcc tgg	728
Ser Arg Glu Ser Asn Ile Arg Ile Tyr Ser Glu Ser Ala Pro Ser Trp	
200 205 210	

ctg agc aaa gat gac atc cga aga atg cga ctc ttg gcg gac agc gca	776
Leu Ser Lys Asp Asp Ile Arg Arg Met Arg Leu Leu Ala Asp Ser Ala	
215 220 225	
gtg gca ggg ctc cgg cct gtg tcc tct agg agc gga gcc cgt ttg ctg	824
Val Ala Gly Leu Arg Pro Val Ser Ser Arg Ser Gly Ala Arg Leu Leu	
230 235 240 245	
gtg ctg gag ggg ggc gca cct ggc gct gtg ctc cgc tgt ggc cct agc	872
Val Leu Glu Gly Gly Ala Pro Gly Ala Val Leu Arg Cys Gly Pro Ser	
250 255 260	
ccc tgt ggg ctt ctc aag cag ccc ttg gac atg agt gag gtg ttt gcc	920
Pro Cys Gly Leu Leu Lys Gln Pro Leu Asp Met Ser Glu Val Phe Ala	
265 270 275	
ttc cac cta gac agg atc ctg ggg ctc aac agg acc ctg ccg tct gtg	968
Phe His Leu Asp Arg Ile Leu Gly Leu Asn Arg Thr Leu Pro Ser Val	
280 285 290	
agc agg aaa gca gag ttc atc caa gat ggc cgc cca tgc ccc atc att	1016
Ser Arg Lys Ala Glu Phe Ile Gln Asp Gly Arg Pro Cys Pro Ile Ile	
295 300 305	
ctt tgg gat gca tct tta tct tca gca agt aat gac acc cat tct tct	1064
Leu Trp Asp Ala Ser Leu Ser Ser Ala Ser Asn Asp Thr His Ser Ser	
310 315 320 325	
gtt aag ctc acc tgg gga act tat cag cag ttg ctg aaa cag aaa tgc	1112
Val Lys Leu Thr Trp Gly Thr Tyr Gln Gln Leu Leu Lys Gln Lys Cys	
330 335 340	
tgg cag aat ggc cga gta ccc aag cct gaa tca ggt tgt act gaa ata	1160
Trp Gln Asn Gly Arg Val Pro Lys Pro Glu Ser Gly Cys Thr Glu Ile	
345 350 355	
cat cat cat gag tgg tcc aag atg gca ctc ttt gat ttt ttg tta cag	1208
His His His Glu Trp Ser Lys Met Ala Leu Phe Asp Phe Leu Leu Gln	
360 365 370	
att tat aat cgc tta gat aca aat tgc tgt gga ttc aga cct cgc aag	1256
Ile Tyr Asn Arg Leu Asp Thr Asn Cys Cys Gly Phe Arg Pro Arg Lys	
375 380 385	
gaa gat gcc tgt gta cag aat gga ttg agg cca aaa tgt gat gac caa	1304
Glu Asp Ala Cys Val Gln Asn Gly Leu Arg Pro Lys Cys Asp Asp Gln	
390 395 400 405	
ggc tct gcg gct cta gca cac att atc cag cga aag cat gac cca agg	1352
Gly Ser Ala Ala Leu Ala His Ile Ile Gln Arg Lys His Asp Pro Arg	
410 415 420	
cat ttg gtt ttt ata gac aac aag ggt ttc ttt gac agg agt gaa gat	1400
His Leu Val Phe Ile Asp Asn Lys Gly Phe Phe Asp Arg Ser Glu Asp	
425 430 435	

aac tta aac ttc aaa ttg tta gaa ggc atc aaa gag ttt cca gct tct 1448  
 Asn Leu Asn Phe Lys Leu Leu Glu Gly Ile Lys Glu Phe Pro Ala Ser  
 440 445 450  
 gca gtt tct gtt ttg aag agc cag cac tta cgg cag aaa ctt ctt cag 1496  
 Ala Val Ser Val Leu Lys Ser Gln His Leu Arg Gln Lys Leu Leu Gln  
 455 460 465  
 tct ctg ttt ctt gat aaa gtg tat tgg gaa agt caa gga ggt aga caa 1544  
 Ser Leu Phe Leu Asp Lys Val Tyr Trp Glu Ser Gln Gly Gly Arg Gln  
 470 475 480 485  
 gga att gaa aag ctt atc gat gta ata gaa cac aga gcc aaa att ctt 1592  
 Gly Ile Glu Lys Leu Ile Asp Val Ile Glu His Arg Ala Lys Ile Leu  
 490 495 500  
 atc acc tat atc aat gca cac ggg gtc aaa gta tta cct atg aat gaa 1640  
 Ile Thr Tyr Ile Asn Ala His Gly Val Lys Val Leu Pro Met Asn Glu  
 505 510 515  
 tgacaaaaga atcttctggc taggggtgta gatatatatta tgcatttttg 1690  
 gttttgtttt taaatcaagc acatcaacct caagcccggt tagcaatgag 1740

<210>132  
 <211>517  
 <212>PRT  
 <213> Homo sapiens

<400>132  
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 Ser Leu Cys Val Pro Arg Val Arg Lys Leu Trp Ser Ser Arg Arg Pro  
 20 25 30  
 Arg Thr Arg Arg Asn Leu Leu Leu Gly Thr Ala Cys Ala Ile Tyr Leu  
 35 40 45  
 Gly Phe Leu Val Ser Gln Val Gly Arg Ala Ser Leu Gln His Gly Gln  
 50 55 60  
 Ala Ala Glu Lys Gly Pro His Arg Ser Arg Asp Thr Ala Glu Pro Ser  
 65 70 75 80  
 Phe Pro Glu Ile Pro Leu Asp Gly Thr Leu Ala Pro Pro Glu Ser Gln  
 85 90 95  
 Gly Asn Gly Ser Thr Leu Gln Pro Asn Val Val Tyr Ile Thr Leu Arg  
 100 105 110  
 Ser Lys Arg Ser Lys Pro Ala Asn Ile Arg Gly Thr Val Lys Pro Lys  
 115 120 125

Arg Arg Lys Lys His Ala Val Ala Ser Ala Ala Gln Gly Gln Glu Ala  
 130 135 140  
 Leu Val Gly Pro Ser Leu Gln Pro Gln Glu Ala Ala Arg Glu Ala Asp  
 145 150 155 160  
 Ala Val Ala Leu Gly Thr Leu Arg Ser Lys Leu Val Lys Met Glu Ser  
 165 170 175  
 Asp Pro Glu Gly Gly Ala Gly Ser Gly Val Arg Ala Gly Gly Pro Asp  
 180 185 190  
 Phe Leu Gln Pro Ser Ser Arg Glu Ser Asn Ile Arg Ile Tyr Ser Glu  
 195 200 205  
 Ser Ala Pro Ser Trp Leu Ser Lys Asp Asp Ile Arg Arg Met Arg Leu  
 210 215 220  
 Leu Ala Asp Ser Ala Val Ala Gly Leu Arg Pro Val Ser Ser Arg Ser  
 225 230 235 240  
 Gly Ala Arg Leu Leu Val Leu Glu Gly Gly Ala Pro Gly Ala Val Leu  
 245 250 255  
 Arg Cys Gly Pro Ser Pro Cys Gly Leu Leu Lys Gln Pro Leu Asp Met  
 260 265 270  
 Ser Glu Val Phe Ala Phe His Leu Asp Arg Ile Leu Gly Leu Asn Arg  
 275 280 285  
 Thr Leu Pro Ser Val Ser Arg Lys Ala Glu Phe Ile Gln Asp Gly Arg  
 290 295 300  
 Pro Cys Pro Ile Ile Leu Trp Asp Ala Ser Leu Ser Ser Ala Ser Asn  
 305 310 315 320  
 Asp Thr His Ser Ser Val Lys Leu Thr Trp Gly Thr Tyr Gln Gln Leu  
 325 330 335  
 Leu Lys Gln Lys Cys Trp Gln Asn Gly Arg Val Pro Lys Pro Glu Ser  
 340 345 350  
 Gly Cys Thr Glu Ile His His His Glu Trp Ser Lys Met Ala Leu Phe  
 355 360 365  
 Asp Phe Leu Leu Gln Ile Tyr Asn Arg Leu Asp Thr Asn Cys Cys Gly  
 370 375 380  
 Phe Arg Pro Arg Lys Glu Asp Ala Cys Val Gln Asn Gly Leu Arg Pro  
 385 390 395 400  
 Lys Cys Asp Asp Gln Gly Ser Ala Ala Leu Ala His Ile Ile Gln Arg  
 405 410 415  
 Lys His Asp Pro Arg His Leu Val Phe Ile Asp Asn Lys Gly Phe Phe  
 420 425 430

Asp Arg Ser Glu Asp Asn Leu Asn Phe Lys Leu Leu Glu Gly Ile Lys  
           435                          440                          445  
 Glu Phe Pro Ala Ser Ala Val Ser Val Leu Lys Ser Gln His Leu Arg  
           450                          455                          460  
 Gln Lys Leu Leu Gln Ser Leu Phe Leu Asp Lys Val Tyr Trp Glu Ser  
 465                          470                          475                          480  
 Gln Gly Gly Arg Gln Gly Ile Glu Lys Leu Ile Asp Val Ile Glu His  
                           485                          490                          495  
 Arg Ala Lys Ile Leu Ile Thr Tyr Ile Asn Ala His Gly Val Lys Val  
                           500                          505                          510  
 Leu Pro Met Asn Glu  
                           515

<210>133  
 <211>1294  
 <212>DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222>(2)..(1049)  
 <400>133

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1                          5                          10                          15	
tac att ttc cat tgt ttt ata act gtg cta ctg aag tac ttg tgt gca	94
Tyr Ile Phe His Cys Phe Ile Thr Val Leu Leu Lys Tyr Leu Cys Ala	
20                          25                          30	
gag tat ggc tgg agg aat gcc atg ttg atc caa ggc gcc gtt tcc tta	142
Glu Tyr Gly Trp Arg Asn Ala Met Leu Ile Gln Gly Ala Val Ser Leu	
35                          40                          45	
aac ctg ttt gtt ttt ggg acc ctc atg agg ccc ctc cct cct ggg aaa	190
Asn Leu Phe Val Phe Gly Thr Leu Met Arg Pro Leu Pro Pro Gly Lys	
50                          55                          60	
aac cca aat gac cca gaa gag aaa gat ctg cgc gtc ctg ccc gcg cac	238
Asn Pro Asn Asp Pro Glu Glu Lys Asp Leu Arg Val Leu Pro Ala His	
65                          70                          75	
tcc aca gag tct gta atg tca aat gga cag cag gga aga ata gaa gag	286
Ser Thr Glu Ser Val Met Ser Asn Gly Gln Gln Gly Arg Ile Glu Glu	
80                          85                          90                          95	
aag gat ggc ggg tct ggg aac gag gag acc ctc tgt gac ctg caa gcc	334
Lys Asp Gly Gly Ser Gly Asn Glu Glu Thr Leu Cys Asp Leu Gln Ala	
100                          105                          110	
cag gag tgc aag ccc agg agt gcc ccg atc agg cca gat cat gtg cgc	382

Gln Glu Cys Lys Pro Arg Ser Ala Pro Ile Arg Pro Asp His Val Arg	
115 120 125	
ttt ccg gtt ctg aag acg gtc agc tgg ctc att atg aga gtc aag aag	430
Phe Pro Val Leu Lys Thr Val Ser Trp Leu Ile Met Arg Val Lys Lys	
130 135 140	
ggc ttc gag gat tgg tac tca ggc tat ttt ggg aca gcc agc cta ttt	478
Gly Phe Glu Asp Trp Tyr Ser Gly Tyr Phe Gly Thr Ala Ser Leu Phe	
145 150 155	
aca aat cga atg ttt gta gcc ttt gtt ttc tgg gct tca ttt gca tac	526
Thr Asn Arg Met Phe Val Ala Phe Val Phe Trp Ala Ser Phe Ala Tyr	
160 165 170 175	
agc agc ttt gtc atc tcc ttt att cat ctc cca gaa atc gtc aat ttg	574
Ser Ser Phe Val Ile Ser Phe Ile His Leu Pro Glu Ile Val Asn Leu	
180 185 190	
tat aac tta ttg gag caa acg aag gtt ttc cct ctg act tca att ata	622
Tyr Asn Leu Leu Glu Gln Thr Lys Val Phe Pro Leu Thr Ser Ile Ile	
195 200 205	
gca ata gtt cac att gtt gga aaa gtg atc ctg ggc gtc ata gct gac	670
Ala Ile Val His Ile Val Gly Lys Val Ile Leu Gly Val Ile Ala Asp	
210 215 220	
tta cct tgc atc agt gtt tgg aat gtc ttc ctg ttg gcc agc ttc gtt	718
Leu Pro Cys Ile Ser Val Trp Asn Val Phe Leu Leu Ala Ser Phe Val	
225 230 235	
ctt gtc ctc agt att ttt gtt ttg ctg cct ttg atg cat atg tac gct	766
Leu Val Leu Ser Ile Phe Val Leu Leu Pro Leu Met His Met Tyr Ala	
240 245 250 255	
ggc ctg gtg gtc atc tgc aca ctg aca ggg ttt tcc agc ggt tat ttc	814
Gly Leu Val Val Ile Cys Thr Leu Thr Gly Phe Ser Ser Gly Tyr Phe	
260 265 270	
tcc cta atg ccc ata gtg act gaa gac ttg gtt ggc att gaa cat ttg	862
Ser Leu Met Pro Ile Val Thr Glu Asp Leu Val Gly Ile Glu His Leu	
275 280 285	
gcc aat gcc tac ggc atc atc atc tgt gct aat ggc atc tct gcg ttg	910
Ala Asn Ala Tyr Gly Ile Ile Ile Cys Ala Asn Gly Ile Ser Ala Leu	
290 295 300	
ttg gga cca cct ttt gca ggt aaa ctg tct gag gtt tta aga gtt cat	958
Leu Gly Pro Pro Phe Ala Gly Lys Leu Ser Glu Val Leu Arg Val His	
305 310 315	
agt gca tat aga tac ggt gtg tta gct ctg cga gga gac gga tgc aga	1006
Ser Ala Tyr Arg Tyr Gly Val Leu Ala Leu Arg Gly Asp Gly Cys Arg	
320 325 330 335	
gca ctc aca tct tct ctt ata cat aga agt gaa atg gct ttc	1048
Ala Leu Thr Ser Ser Leu Ile His Arg Ser Glu Met Ala Phe	

340

345

taaagttaga tcaactggcca gagtttttga gtcacaagag ctattccaca 1098

gatttccttt agaaaaacaa tcaccactgg cagtccactt cagtgcacaca 1148

gaatgggttg cagaacttgc ttacttatgt gacacattca acctgctcaa 1198

tgaactcaat ctgtcacttc aggggagaag gacaactgtg ttcaagtcag 1248

caaataaagt ggctacattc aaaaccaaac tggaattacg ggggtg 1294

&lt;210&gt;134

&lt;211&gt;349

&lt;212&gt;PRT

&lt;213&gt; Homo sapiens

&lt;400&gt;134

Met Ala Thr Leu Asn Val Val Leu Met Leu Met Pro Leu Ala Gln Tyr  
1 5 10 15

Ile Phe His Cys Phe Ile Thr Val Leu Leu Lys Tyr Leu Cys Ala Glu  
20 25 30

Tyr Gly Trp Arg Asn Ala Met Leu Ile Gln Gly Ala Val Ser Leu Asn  
35 40 45

Leu Phe Val Phe Gly Thr Leu Met Arg Pro Leu Pro Pro Gly Lys Asn  
50 55 60

Pro Asn Asp Pro Glu Glu Lys Asp Leu Arg Val Leu Pro Ala His Ser  
65 70 75 80

Thr Glu Ser Val Met Ser Asn Gly Gln Gln Gly Arg Ile Glu Glu Lys  
85 90 95

Asp Gly Gly Ser Gly Asn Glu Glu Thr Leu Cys Asp Leu Gln Ala Gln  
100 105 110

Glu Cys Lys Pro Arg Ser Ala Pro Ile Arg Pro Asp His Val Arg Phe  
115 120 125

Pro Val Leu Lys Thr Val Ser Trp Leu Ile Met Arg Val Lys Lys Gly  
130 135 140

Phe Glu Asp Trp Tyr Ser Gly Tyr Phe Gly Thr Ala Ser Leu Phe Thr  
145 150 155 160

Asn Arg Met Phe Val Ala Phe Val Phe Trp Ala Ser Phe Ala Tyr Ser  
 165 170 175  
 Ser Phe Val Ile Ser Phe Ile His Leu Pro Glu Ile Val Asn Leu Tyr  
 180 185 190  
 Asn Leu Leu Glu Gln Thr Lys Val Phe Pro Leu Thr Ser Ile Ile Ala  
 195 200 205  
 Ile Val His Ile Val Gly Lys Val Ile Leu Gly Val Ile Ala Asp Leu  
 210 215 220  
 Pro Cys Ile Ser Val Trp Asn Val Phe Leu Leu Ala Ser Phe Val Leu  
 225 230 235 240  
 Val Leu Ser Ile Phe Val Leu Leu Pro Leu Met His Met Tyr Ala Gly  
 245 250 255  
 Leu Val Val Ile Cys Thr Leu Thr Gly Phe Ser Ser Gly Tyr Phe Ser  
 260 265 270  
 Leu Met Pro Ile Val Thr Glu Asp Leu Val Gly Ile Glu His Leu Ala  
 275 280 285  
 Asn Ala Tyr Gly Ile Ile Ile Cys Ala Asn Gly Ile Ser Ala Leu Leu  
 290 295 300  
 Gly Pro Pro Phe Ala Gly Lys Leu Ser Glu Val Leu Arg Val His Ser  
 305 310 315 320  
 Ala Tyr Arg Tyr Gly Val Leu Ala Leu Arg Gly Asp Gly Cys Arg Ala  
 325 330 335  
 Leu Thr Ser Ser Leu Ile His Arg Ser Glu Met Ala Phe  
 340 345

<210>135  
 <211>455  
 <212>DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (31) .. (427)  
 <400>135

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 Met Ser Asn Lys Phe Leu Gly  
 1 5  
 acc tgg aag ctg gtc tcc agt gaa aac ttt gag gat tac atg aaa gaa 99  
 Thr Trp Lys Leu Val Ser Ser Glu Asn Phe Glu Asp Tyr Met Lys Glu  
 10 15 20  
 ctg gga gtg aat ttc gca gcc cgg aac atg gca ggg tta gtg aaa ccg 147  
 Leu Gly Val Asn Phe Ala Ala Arg Asn Met Ala Gly Leu Val Lys Pro  
 25 30 35



aca gta act att agt gtt gat ggg aaa atg atg acc ata aga aca gaa 195  
 Thr Val Thr Ile Ser Val Asp Gly Lys Met Met Thr Ile Arg Thr Glu  
 40 45 50 55  
 agt tct ttc cag gac act aag atc tcc ttc aag ctg ggg gaa gaa ttt 243  
 Ser Ser Phe Gln Asp Thr Lys Ile Ser Phe Lys Leu Gly Glu Glu Phe  
 60 65 70  
 gat gaa act aca gca gac aac cgg aaa gta aag agc acc ata aca tta 291  
 Asp Glu Thr Thr Ala Asp Asn Arg Lys Val Lys Ser Thr Ile Thr Leu  
 75 80 85  
 gag aat ggc tca atg att cac gtc caa aaa tgg ctt ggc aaa gag aca 339  
 Glu Asn Gly Ser Met Ile His Val Gln Lys Trp Leu Gly Lys Glu Thr  
 90 95 100  
 aca atc aaa aga aaa att gtg gat gaa aaa atg gta gtg gaa tgt aaa 387  
 Thr Ile Lys Arg Lys Ile Val Asp Glu Lys Met Val Val Glu Cys Lys  
 105 110 115  
 atg aat aat att gtc agc acc aga atc tac gaa aag gtc tgaaaaatca 436  
 Met Asn Asn Ile Val Ser Thr Arg Ile Tyr Glu Lys Val  
 120 125 130  
 tttcttcatt gaagtggct 455

<210>136

<211>132

<212>PRT

<213> Homo sapiens

<400>136

Met Ser Asn Lys Phe Leu Gly Thr Trp Lys Leu Val Ser Ser Glu Asn  
 1 5 10 15  
 Phe Glu Asp Tyr Met Lys Glu Leu Gly Val Asn Phe Ala Ala Arg Asn  
 20 25 30  
 Met Ala Gly Leu Val Lys Pro Thr Val Thr Ile Ser Val Asp Gly Lys  
 35 40 45  
 Met Met Thr Ile Arg Thr Glu Ser Ser Phe Gln Asp Thr Lys Ile Ser  
 50 55 60  
 Phe Lys Leu Gly Glu Glu Phe Asp Glu Thr Thr Ala Asp Asn Arg Lys  
 65 70 75 80  
 Val Lys Ser Thr Ile Thr Leu Glu Asn Gly Ser Met Ile His Val Gln  
 85 90 95  
 Lys Trp Leu Gly Lys Glu Thr Thr Ile Lys Arg Lys Ile Val Asp Glu  
 100 105 110  
 Lys Met Val Val Glu Cys Lys Met Asn Asn Ile Val Ser Thr Arg Ile

115	120	125	
Tyr Glu Lys Val			
130			
<210>137			
<211>1561			
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<222>(454) ..(1132)			
<400>137			
aagaattgta gctctccact gaattgcagg gggtcttgaa tgttgtaaac			50
atttggaggc agttggagga gggagctcta ttgatgaaaa atggctacat			100
attcaaaatt tcagtgtata ccaggaagat aattcaattc aatctctggc			150
ttacccaaag aatcttggag ttactgccaa tgaggaaatc cccagggctc			200
aataaaaata tctttaggag tgaaggagtt aactgagtgt gtaagcttta			250
tcttctgtcc aatggacttg tggtttgctt ataaaactct ccagtaaata			300
attgttagag acctgtcatt gatagcagtt gctagttgct gccttttaag			350
agctcgttga ttcctctgca aggtggtgca gcacccctctg tcccttcatt			400
catttcagat ctactcaggt ctccctgtaa acagatctct cggatcaata			450
agc atg aat gac gaa gac tac agc acc atc tat gac aca atc caa aat			498
Met Asn Asp Glu Asp Tyr Ser Thr Ile Tyr Asp Thr Ile Gln Asn			
5 10 15			
gag agg acg tat gag gtt cca gac cag cca gaa gaa aat gaa agt ccc			546
Glu Arg Thr Tyr Glu Val Pro Asp Gln Pro Glu Glu Asn Glu Ser Pro			
20 25 30			

cat tat gat gat gtc cat gag tac tta agg cca gaa aat gat tta tat	594
His Tyr Asp Asp Val His Glu Tyr Leu Arg Pro Glu Asn Asp Leu Tyr	
35 40 45	
gcc act cag ctg aat acc cat gag tat gat ttt gtg tca gtc tat acc	642
Ala Thr Gln Leu Asn Thr His Glu Tyr Asp Phe Val Ser Val Tyr Thr	
50 55 60	
att aag ggt gaa gag acc agc ttg gcc tct gtc cag tca gaa gac aga	690
Ile Lys Gly Glu Glu Thr Ser Leu Ala Ser Val Gln Ser Glu Asp Arg	
65 70 75	
ggc tac ctc ctg cct gat gag ata tac tct gaa ctc cag gag gct cat	738
Gly Tyr Leu Leu Pro Asp Glu Ile Tyr Ser Glu Leu Gln Glu Ala His	
80 85 90 95	
cca ggt gag ccc cag gag gac agg ggc atc tca atg gaa ggg tta tat	786
Pro Gly Glu Pro Gln Glu Asp Arg Gly Ile Ser Met Glu Gly Leu Tyr	
100 105 110	
tca tca acc cag gac cag caa ctc tgc gca gca gaa ctc cag gag aat	834
Ser Ser Thr Gln Asp Gln Gln Leu Cys Ala Ala Glu Leu Gln Glu Asn	
115 120 125	
ggg agt gtg atg aag gaa gat ctg cct tct cct tca agc ttc acc att	882
Gly Ser Val Met Lys Glu Asp Leu Pro Ser Pro Ser Ser Phe Thr Ile	
130 135 140	
cag cac agt aag gcc ttc tct acc acc aag tat tcc tgc tat tct gat	930
Gln His Ser Lys Ala Phe Ser Thr Thr Lys Tyr Ser Cys Tyr Ser Asp	
145 150 155	
gct gaa ggt ttg gaa gaa aag gag gga gct cac atg aac cct gag att	978
Ala Glu Gly Leu Glu Glu Lys Glu Gly Ala His Met Asn Pro Glu Ile	
160 165 170 175	
tac ctc ttt gtg aag gta agg tct gcc tct gac agg cat acc ctg ttc	1026
Tyr Leu Phe Val Lys Val Arg Ser Ala Ser Asp Arg His Thr Leu Phe	
180 185 190	
atg cag ata tta tgg ctg gtg ttt tat ttt gct ctg aat gac cag gga	1074
Met Gln Ile Leu Trp Leu Val Phe Tyr Phe Ala Leu Asn Asp Gln Gly	
195 200 205	
aag att cat aat gcc atg gtc ctt gga tct caa tac ata ttc agg agt	1122
Lys Ile His Asn Ala Met Val Leu Gly Ser Gln Tyr Ile Phe Arg Ser	
210 215 220	
cgg agg gac taaatcagtc attagagtgt actcagctct tcacaaaatt	1171
Arg Arg Asp	
225	
agaggaattg gaagggtgcat ttaaagcacg tattttaatca ctgactttta	1221

cataccatgg gcaaagtatt tttcaaaacg gttcacataa gtgagccata 1271  
 actgctgccc aaatccttgc cattgtggct gacattaagt acatttttct 1321  
 gtctgggttaa atttcctttg tgcacatggt taaaagtga accaaagctt 1371  
 gtgaaagaaa gaccttcttg tgcttctaag gtcacagatt tgtcagatag 1421  
 gtgggtcaata aaggctatct ctgtcactag cttgccccctt tggcaccaat 1471  
 ataactaaaa atttgatgaa gtcaaatgat ttcagtagta gtaagacact 1521  
 accagtgtta atgtttaata cttacgatat ctaaacagaa 1561

<210>138  
 <211>226  
 <212>PRT  
 <213> Homo sapiens

<400>138  
 Met Asn Asp Glu Asp Tyr Ser Thr Ile Tyr Asp Thr Ile Gln Asn Glu  
 1 5 10 15  
 Arg Thr Tyr Glu Val Pro Asp Gln Pro Glu Glu Asn Glu Ser Pro His  
 20 25 30  
 Tyr Asp Asp Val His Glu Tyr Leu Arg Pro Glu Asn Asp Leu Tyr Ala  
 35 40 45  
 Thr Gln Leu Asn Thr His Glu Tyr Asp Phe Val Ser Val Tyr Thr Ile  
 50 55 60  
 Lys Gly Glu Glu Thr Ser Leu Ala Ser Val Gln Ser Glu Asp Arg Gly  
 65 70 75 80  
 Tyr Leu Leu Pro Asp Glu Ile Tyr Ser Glu Leu Gln Glu Ala His Pro  
 85 90 95  
 Gly Glu Pro Gln Glu Asp Arg Gly Ile Ser Met Glu Gly Leu Tyr Ser  
 100 105 110  
 Ser Thr Gln Asp Gln Gln Leu Cys Ala Ala Glu Leu Gln Glu Asn Gly  
 115 120 125

Ser Val Met Lys Glu Asp Leu Pro Ser Pro Ser Ser Phe Thr Ile Gln  
130 135 140

His Ser Lys Ala Phe Ser Thr Thr Lys Tyr Ser Cys Tyr Ser Asp Ala  
145 150 155 160

Glu Gly Leu Glu Glu Lys Glu Gly Ala His Met Asn Pro Glu Ile Tyr  
165 170 175

Leu Phe Val Lys Val Arg Ser Ala Ser Asp Arg His Thr Leu Phe Met  
180 185 190

Gln Ile Leu Trp Leu Val Phe Tyr Phe Ala Leu Asn Asp Gln Gly Lys  
195 200 205

Ile His Asn Ala Met Val Leu Gly Ser Gln Tyr Ile Phe Arg Ser Arg  
210 215 220

Arg Asp  
225

<210>139  
<211>809  
<212>DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222>(72)..(750)  
<400>139

atcctctgtc ccttcattca tttcagatct actcaggtct ccctgtaaac 50

agatctctcg gatcaataag c atg aat gac gaa gac tac ggc acc atc tat 101  
Met Asn Asp Glu Asp Tyr Gly Thr Ile Tyr  
5 10

gac aca atc caa aat gag agg acg tat gag gtt cca gac cag cca gaa 149  
Asp Thr Ile Gln Asn Glu Arg Thr Tyr Glu Val Pro Asp Gln Pro Glu  
15 20 25

gaa aat gaa agt ccc cat tat gat gat gtc cat gag tac tta agg cca 197  
Glu Asn Glu Ser Pro His Tyr Asp Asp Val His Glu Tyr Leu Arg Pro  
30 35 40

gaa aat gat tta tat gcc act cag ctg aat acc cat gag tat gat ttt 245  
Glu Asn Asp Leu Tyr Ala Thr Gln Leu Asn Thr His Glu Tyr Asp Phe  
45 50 55

gtg tca gtc tat acc att aag ggt gaa gag acc agc ttg gcc tct gtc 293  
Val Ser Val Tyr Thr Ile Lys Gly Glu Glu Thr Ser Leu Ala Ser Val  
60 65 70

cag tca gaa gac aga ggc tac ctc ctg cct gat gag ata tac tct gaa 341  
Gln Ser Glu Asp Arg Gly Tyr Leu Leu Pro Asp Glu Ile Tyr Ser Glu

75	80	85	90	
ctc cag gag gct cat cca ggt gag ccc cag gag gac agg ggc atc tca				389
Leu Gln Glu Ala His Pro Gly Glu Pro Gln Glu Asp Arg Gly Ile Ser				
	95	100	105	
atg gaa ggg tta tat tca tca acc cag gac cag caa ctc tgc gca gca				437
Met Glu Gly Leu Tyr Ser Ser Thr Gln Asp Gln Gln Leu Cys Ala Ala				
	110	115	120	
gaa ctc cag gag aat ggg agt gtg atg aag gaa gat ctg cct tct cct				485
Glu Leu Gln Glu Asn Gly Ser Val Met Lys Glu Asp Leu Pro Ser Pro				
	125	130	135	
tca agc ttc acc att cag cac agt aag gcc ttc tct acc acc aag tat				533
Ser Ser Phe Thr Ile Gln His Ser Lys Ala Phe Ser Thr Thr Lys Tyr				
	140	145	150	
tcc tgc tat tct gat gct gaa ggt ttg gaa gaa aag gag gga gct cac				581
Ser Cys Tyr Ser Asp Ala Glu Gly Leu Glu Glu Lys Glu Gly Ala His				
	155	160	165	170
atg aac cct gag att tac ctc ttt gtg aag gta agg tct gcc tct gac				629
Met Asn Pro Glu Ile Tyr Leu Phe Val Lys Val Arg Ser Ala Ser Asp				
	175	180	185	
agg cat acc ctg ttc atg cag ata tta tgg ctg gtg ttt tat ttt gct				677
Arg His Thr Leu Phe Met Gln Ile Leu Trp Leu Val Phe Tyr Phe Ala				
	190	195	200	
ctg aat gac cag gga aag att cat aat gcc atg gtc ctt gga tct caa				725
Leu Asn Asp Gln Gly Lys Ile His Asn Ala Met Val Leu Gly Ser Gln				
	205	210	215	
tac ata ttc agg agt cgg agg gac taaatcagtc attagagtgt				769
Tyr Ile Phe Arg Ser Arg Arg Asp				
	220	225		
actcagctct tcacaaaatt agaggaattg gaaggtgcat				809

<210>140

<211>226

<212>PRT

<213> Homo sapiens

<400>140

Met	Asn	Asp	Glu	Asp	Tyr	Gly	Thr	Ile	Tyr	Asp	Thr	Ile	Gln	Asn	Glu
1					5				10				15		

Arg	Thr	Tyr	Glu	Val	Pro	Asp	Gln	Pro	Glu	Glu	Asn	Glu	Ser	Pro	His
			20					25					30		

Tyr	Asp	Asp	Val	His	Glu	Tyr	Leu	Arg	Pro	Glu	Asn	Asp	Leu	Tyr	Ala
		35					40					45			

Thr Gln Leu Asn Thr His Glu Tyr Asp Phe Val Ser Val Tyr Thr Ile  
50 55 60

Lys Gly Glu Glu Thr Ser Leu Ala Ser Val Gln Ser Glu Asp Arg Gly  
65 70 75 80

Tyr Leu Leu Pro Asp Glu Ile Tyr Ser Glu Leu Gln Glu Ala His Pro  
85 90 95

Gly Glu Pro Gln Glu Asp Arg Gly Ile Ser Met Glu Gly Leu Tyr Ser  
100 105 110

Ser Thr Gln Asp Gln Gln Leu Cys Ala Ala Glu Leu Gln Glu Asn Gly  
115 120 125

Ser Val Met Lys Glu Asp Leu Pro Ser Pro Ser Ser Phe Thr Ile Gln  
130 135 140

His Ser Lys Ala Phe Ser Thr Thr Lys Tyr Ser Cys Tyr Ser Asp Ala  
145 150 155 160

Glu Gly Leu Glu Glu Lys Glu Gly Ala His Met Asn Pro Glu Ile Tyr  
165 170 175

Leu Phe Val Lys Val Arg Ser Ala Ser Asp Arg His Thr Leu Phe Met  
180 185 190

Gln Ile Leu Trp Leu Val Phe Tyr Phe Ala Leu Asn Asp Gln Gly Lys  
195 200 205

Ile His Asn Ala Met Val Leu Gly Ser Gln Tyr Ile Phe Arg Ser Arg  
210 215 220

Arg Asp  
225

<210>141

<211>877

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(3)..(873)

<400>141

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Phe Val Leu Leu Gly Phe Thr Gln Asn Pro Lys Glu Gln Lys Val  
1 5 10 15

ctt ttt gtt atg ttc ttg ctc ttc tac att ttg acc atg gtg ggc aac 95  
Leu Phe Val Met Phe Leu Leu Phe Tyr Ile Leu Thr Met Val Gly Asn  
20 25 30

ctg ctc att gta gtg acc gta act gtc agt gag acc ctg ggc tca cca 143  
Leu Leu Ile Val Val Thr Val Thr Val Ser Glu Thr Leu Gly Ser Pro  
35 40 45

atg tac ttc ttt ctt gct ggc tta tca ttt ata gat atc att tat tct	191
Met Tyr Phe Phe Leu Ala Gly Leu Ser Phe Ile Asp Ile Ile Tyr Ser	
50 55 60	
tca tcc att tcc ccc aga ttg att tca ggc ttg ttc ttt ggg aat aat	239
Ser Ser Ile Ser Pro Arg Leu Ile Ser Gly Leu Phe Phe Gly Asn Asn	
65 70 75	
tcc ata tcc ttc caa tct tgc atg gcc cag ctc ttt atc gag cac att	287
Ser Ile Ser Phe Gln Ser Cys Met Ala Gln Leu Phe Ile Glu His Ile	
80 85 90 95	
ttc ggt ggg tca gag gtc ttt ctc ctg ttg gtg atg gcc tat gac tgc	335
Phe Gly Gly Ser Glu Val Phe Leu Leu Leu Val Met Ala Tyr Asp Cys	
100 105 110	
tat gtg gcc atc tgt aag ccc ttg cat tat ttg gtt atc atg aga caa	383
Tyr Val Ala Ile Cys Lys Pro Leu His Tyr Leu Val Ile Met Arg Gln	
115 120 125	
tgg gtg tgt gtt gtg ctg ctg gta gtg tcc tgg gtt gga gga ttt ctg	431
Trp Val Cys Val Val Leu Leu Val Val Ser Trp Val Gly Gly Phe Leu	
130 135 140	
cac tca gta ttt caa ctt agc att att tat ggg ctc cca ttc tgt ggc	479
His Ser Val Phe Gln Leu Ser Ile Ile Tyr Gly Leu Pro Phe Cys Gly	
145 150 155	
ccc aat gtc att gat cat ttt ttc tgt gac atg tat ccc tta ttg aaa	527
Pro Asn Val Ile Asp His Phe Phe Cys Asp Met Tyr Pro Leu Leu Lys	
160 165 170 175	
ctg gtc tgc act gac acc cat gct att ggc ctc tta gtg gtg gcc aat	575
Leu Val Cys Thr Asp Thr His Ala Ile Gly Leu Leu Val Val Ala Asn	
180 185 190	
gga gga ctg gct tgc act att gtg ttt ctg ctc tta ctc atc tct tat	623
Gly Gly Leu Ala Cys Thr Ile Val Phe Leu Leu Leu Leu Ile Ser Tyr	
195 200 205	
ggg gtc atc ttg cac tct tta aag aac ctt agt cag aaa ggg agg caa	671
Gly Val Ile Leu His Ser Leu Lys Asn Leu Ser Gln Lys Gly Arg Gln	
210 215 220	
aaa gcc ctc tca acc tgc agt tcc cac atg act gtg gtt gtc ttc ttc	719
Lys Ala Leu Ser Thr Cys Ser Ser His Met Thr Val Val Val Phe Phe	
225 230 235	
ttt gtt cct tgt att ttt atg tat gct aga cct gct agg acc ttc ccc	767
Phe Val Pro Cys Ile Phe Met Tyr Ala Arg Pro Ala Arg Thr Phe Pro	
240 245 250 255	
att gac aaa tca gtg agt gtg ttt tat aca gtc ata acc cca atg ctg	815
Ile Asp Lys Ser Val Ser Val Phe Tyr Thr Val Ile Thr Pro Met Leu	
260 265 270	
aac ccc tta atc tac act ctg aga aat tct gag atg aca agt gct atg	863



Asn Pro Leu Ile Tyr Thr Leu Arg Asn Ser Glu Met Thr Ser Ala Met  
 275 280 285

aag aag ctt tagag  
 Lys Lys Leu  
 290

877

<210>142  
 <211>290  
 <212>PRT  
 <213> Homo sapiens

<400>142  
 Phe Val Leu Leu Gly Phe Thr Gln Asn Pro Lys Glu Gln Lys Val Leu  
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Phe Val Met Phe Leu Leu Phe Tyr Ile Leu Thr Met Val Gly Asn Leu  
 20 25 30

Leu Ile Val Val Thr Val Thr Val Ser Glu Thr Leu Gly Ser Pro Met  
 35 40 45

Tyr Phe Phe Leu Ala Gly Leu Ser Phe Ile Asp Ile Ile Tyr Ser Ser  
 50 55 60

Ser Ile Ser Pro Arg Leu Ile Ser Gly Leu Phe Phe Gly Asn Asn Ser  
 65 70 75 80

Ile Ser Phe Gln Ser Cys Met Ala Gln Leu Phe Ile Glu His Ile Phe  
 85 90 95

Gly Gly Ser Glu Val Phe Leu Leu Leu Val Met Ala Tyr Asp Cys Tyr  
 100 105 110

Val Ala Ile Cys Lys Pro Leu His Tyr Leu Val Ile Met Arg Gln Trp  
 115 120 125

Val Cys Val Val Leu Leu Val Val Ser Trp Val Gly Gly Phe Leu His  
 130 135 140

Ser Val Phe Gln Leu Ser Ile Ile Tyr Gly Leu Pro Phe Cys Gly Pro  
 145 150 155 160

Asn Val Ile Asp His Phe Phe Cys Asp Met Tyr Pro Leu Leu Lys Leu  
 165 170 175

Val Cys Thr Asp Thr His Ala Ile Gly Leu Leu Val Val Ala Asn Gly  
 180 185 190

Gly Leu Ala Cys Thr Ile Val Phe Leu Leu Leu Leu Ile Ser Tyr Gly  
 195 200 205

Val Ile Leu His Ser Leu Lys Asn Leu Ser Gln Lys Gly Arg Gln Lys  
 210 215 220

Ala Leu Ser Thr Cys Ser Ser His Met Thr Val Val Val Phe Phe Phe  
 225 230 235 240

Val Pro Cys Ile Phe Met Tyr Ala Arg Pro Ala Arg Thr Phe Pro Ile  
245 250 255

Asp Lys Ser Val Ser Val Phe Tyr Thr Val Ile Thr Pro Met Leu Asn  
260 265 270

Pro Leu Ile Tyr Thr Leu Arg Asn Ser Glu Met Thr Ser Ala Met Lys  
275 280 285

Lys Leu  
290

<210>143

<211>1746

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(98)..(1670)

<400>143

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aagaatatcc agctggtggc tacagttccc cctctggttt tgctgcc atg cat cct 106  
Met His Pro

ggg cga act act ggt aaa ggg ccc tct act cac act cag att gac cag 154  
Gly Arg Thr Thr Gly Lys Gly Pro Ser Thr His Thr Gln Ile Asp Gln  
5 10 15

caa cct cca cgg ctt ctc att gtg cac att gct cta ccg tcc tgg gct 202  
Gln Pro Pro Arg Leu Leu Ile Val His Ile Ala Leu Pro Ser Trp Ala  
20 25 30 35

gac atc tgc acc aac ctc tgt gag gct ctg cag aac ttc ttc tct cta 250  
Asp Ile Cys Thr Asn Leu Cys Glu Ala Leu Gln Asn Phe Phe Ser Leu  
40 45 50

gcc tgc agc ttg atg ggc ccc agc cgc atg tcc ctg ttc agt tta tac 298  
Ala Cys Ser Leu Met Gly Pro Ser Arg Met Ser Leu Phe Ser Leu Tyr  
55 60 65

atg gta caa gat cag cat gag tgc atc ctc cct ttt gtg caa gtg aaa 346  
Met Val Gln Asp Gln His Glu Cys Ile Leu Pro Phe Val Gln Val Lys  
70 75 80

ggg aac ttt gct agg ttg cag acc tgc atc tca gaa ctc cgc atg tta 394  
Gly Asn Phe Ala Arg Leu Gln Thr Cys Ile Ser Glu Leu Arg Met Leu  
85 90 95

cag aga gaa ggg tgt ttc aga tca caa ggt gct tct ctg cgg ctg gca 442  
Gln Arg Glu Gly Cys Phe Arg Ser Gln Gly Ala Ser Leu Arg Leu Ala  
100 105 110 115

gta gag gat ggg ctc cag caa ttc aaa caa tac agc aga cat gtg acc	490
Val Glu Asp Gly Leu Gln Gln Phe Lys Gln Tyr Ser Arg His Val Thr	
120 125 130	
aca agg gca gct ctg acc tat acc tcc ctg gag att act att ctg act	538
Thr Arg Ala Ala Leu Thr Tyr Thr Ser Leu Glu Ile Thr Ile Leu Thr	
135 140 145	
tct cag cct gga aaa gag gtg gtc aaa cag ttg gag gaa ggg ttg aaa	586
Ser Gln Pro Gly Lys Glu Val Val Lys Gln Leu Glu Glu Gly Leu Lys	
150 155 160	
gat aca gac cta gcc aga gtc agg agg ttt cag gtc gtt gag gtc aca	634
Asp Thr Asp Leu Ala Arg Val Arg Arg Phe Gln Val Val Glu Val Thr	
165 170 175	
aag gga atc cta gag cac gtg gac tca gcg tct cct gtt gag gat acc	682
Lys Gly Ile Leu Glu His Val Asp Ser Ala Ser Pro Val Glu Asp Thr	
180 185 190 195	
agc aat gat gag agt tct att ctg gga act gac att gac ctt cag act	730
Ser Asn Asp Glu Ser Ser Ile Leu Gly Thr Asp Ile Asp Leu Gln Thr	
200 205 210	
ata gac aat gat atc gtc agc atg gag att ttc ttc aaa gcc tgg cta	778
Ile Asp Asn Asp Ile Val Ser Met Glu Ile Phe Phe Lys Ala Trp Leu	
215 220 225	
cat aac agt gga aca gac caa gaa caa atc cat ctt ctt ctt tct tca	826
His Asn Ser Gly Thr Asp Gln Glu Gln Ile His Leu Leu Leu Ser Ser	
230 235 240	
cag tgt ttc agc aac att tcc aga ccc aga gat aat cca atg tgt ctg	874
Gln Cys Phe Ser Asn Ile Ser Arg Pro Arg Asp Asn Pro Met Cys Leu	
245 250 255	
aaa tgt gat ctc caa gag cga ctg ctc tgc cca tcc cta ctc gct ggc	922
Lys Cys Asp Leu Gln Glu Arg Leu Leu Cys Pro Ser Leu Leu Ala Gly	
260 265 270 275	
aca gct gac ggc tcc ttg aga atg gat gac cct aaa gga gac ttc atc	970
Thr Ala Asp Gly Ser Leu Arg Met Asp Asp Pro Lys Gly Asp Phe Ile	
280 285 290	
aca ctc tac cag atg gct tcc cag tca tcg gcc tct cat tac aag ctc	1018
Thr Leu Tyr Gln Met Ala Ser Gln Ser Ser Ala Ser His Tyr Lys Leu	
295 300 305	
caa gtg atc aag gct tta aaa tct agc ggg ctc tgc gag tca ttg aca	1066
Gln Val Ile Lys Ala Leu Lys Ser Ser Gly Leu Cys Glu Ser Leu Thr	
310 315 320	
tat gga ctc ccg ttc atc ctc aga cct aca agc tgt tgg cag ctg gac	1114
Tyr Gly Leu Pro Phe Ile Leu Arg Pro Thr Ser Cys Trp Gln Leu Asp	
325 330 335	

tgg gat gag ctg gag aca aat cag caa cat ttc cat gct ttg tgt cac	1162
Trp Asp Glu Leu Glu Thr Asn Gln Gln His Phe His Ala Leu Cys His	
340 345 350 355	
agc ctg ctg aaa agg gaa tgg ctg ctg tta gcc aag ggg gaa cca ccg	1210
Ser Leu Leu Lys Arg Glu Trp Leu Leu Leu Ala Lys Gly Glu Pro Pro	
360 365 370	
ggc cca gga cac agc cag aga att cct gcc agc acc ttc tat gtg atc	1258
Gly Pro Gly His Ser Gln Arg Ile Pro Ala Ser Thr Phe Tyr Val Ile	
375 380 385	
atg ccg tca cac tcc ctc aca ctg ctg gta aag gcg gtg gcc acg cgg	1306
Met Pro Ser His Ser Leu Thr Leu Leu Val Lys Ala Val Ala Thr Arg	
390 395 400	
gaa ctg atg ctg ccc agc acc ttc ccc ctg cta cct gag gac cca cat	1354
Glu Leu Met Leu Pro Ser Thr Phe Pro Leu Leu Pro Glu Asp Pro His	
405 410 415	
gat gat agc ctt aag aat agc atg ctg gac agc ctg gag ctg gag ccc	1402
Asp Asp Ser Leu Lys Asn Ser Met Leu Asp Ser Leu Glu Leu Glu Pro	
420 425 430 435	
acc tac aac ccc ttg cat gtt caa agc cac ctg tac tca cac ctg agc	1450
Thr Tyr Asn Pro Leu His Val Gln Ser His Leu Tyr Ser His Leu Ser	
440 445 450	
agc atc tat gcc aag cct cag ggg cgg ctc cac cca cac tgg gag agc	1498
Ser Ile Tyr Ala Lys Pro Gln Gly Arg Leu His Pro His Trp Glu Ser	
455 460 465	
cga gct ccg aga aag act ggg cag ttg cag acc aac cga gct cga gct	1546
Arg Ala Pro Arg Lys Thr Gly Gln Leu Gln Thr Asn Arg Ala Arg Ala	
470 475 480	
act gtg gcc ccc ctg cct atg act cct gtc cca ggc aga gcc tcc aag	1594
Thr Val Ala Pro Leu Pro Met Thr Pro Val Pro Gly Arg Ala Ser Lys	
485 490 495	
atg cca gca gcc agc aaa tct tcc tca gat gcc ttc ttc ctg cct tca	1642
Met Pro Ala Ala Ser Lys Ser Ser Ser Asp Ala Phe Phe Leu Pro Ser	
500 505 510 515	
gag tgg gag aag gat ccc tca agg ccc taagtcacca gcaccagagc	1689
Glu Trp Glu Lys Asp Pro Ser Arg Pro	
520	
ccagctgccc agcttaacca tatccatgct cagggttcaca taatggctat	1739
ctgtggt	1746

<210>144

<400>144

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20 25 30

Ser Trp Ala Asp Ile Cys Thr Asn Leu Cys Glu Ala Leu Gln Asn Phe  
35 40 45

Phe Ser Leu Ala Cys Ser Leu Met Gly Pro Ser Arg Met Ser Leu Phe  
50 55 60

Ser Leu Tyr Met Val Gln Asp Gln His Glu Cys Ile Leu Pro Phe Val  
65 70 75 80

Gln Val Lys Gly Asn Phe Ala Arg Leu Gln Thr Cys Ile Ser Glu Leu  
85 90 95

Arg Met Leu Gln Arg Glu Gly Cys Phe Arg Ser Gln Gly Ala Ser Leu  
100 105 110

Arg Leu Ala Val Glu Asp Gly Leu Gln Gln Phe Lys Gln Tyr Ser Arg  
115 120 125

His Val Thr Thr Arg Ala Ala Leu Thr Tyr Thr Ser Leu Glu Ile Thr  
130 135 140

Ile Leu Thr Ser Gln Pro Gly Lys Glu Val Val Lys Gln Leu Glu Glu  
145 150 155 160

Gly Leu Lys Asp Thr Asp Leu Ala Arg Val Arg Arg Phe Gln Val Val  
165 170 175

Glu Val Thr Lys Gly Ile Leu Glu His Val Asp Ser Ala Ser Pro Val  
180 185 190

Glu Asp Thr Ser Asn Asp Glu Ser Ser Ile Leu Gly Thr Asp Ile Asp  
195 200 205

Leu Gln Thr Ile Asp Asn Asp Ile Val Ser Met Glu Ile Phe Phe Lys  
210 215 220

Ala Trp Leu His Asn Ser Gly Thr Asp Gln Glu Gln Ile His Leu Leu  
225 230 235 240

Leu Ser Ser Gln Cys Phe Ser Asn Ile Ser Arg Pro Arg Asp Asn Pro  
245 250 255

Met Cys Leu Lys Cys Asp Leu Gln Glu Arg Leu Leu Cys Pro Ser Leu  
260 265 270

Leu Ala Gly Thr Ala Asp Gly Ser Leu Arg Met Asp Asp Pro Lys Gly

275                      280                      285  
 Asp Phe Ile Thr Leu Tyr Gln Met Ala Ser Gln Ser Ser Ala Ser His  
     290                      295                      300  
 Tyr Lys Leu Gln Val Ile Lys Ala Leu Lys Ser Ser Gly Leu Cys Glu  
     305                      310                      315                      320  
 Ser Leu Thr Tyr Gly Leu Pro Phe Ile Leu Arg Pro Thr Ser Cys Trp  
                     325                      330                      335  
 Gln Leu Asp Trp Asp Glu Leu Glu Thr Asn Gln Gln His Phe His Ala  
                     340                      345                      350  
 Leu Cys His Ser Leu Leu Lys Arg Glu Trp Leu Leu Leu Ala Lys Gly  
                     355                      360                      365  
 Glu Pro Pro Gly Pro Gly His Ser Gln Arg Ile Pro Ala Ser Thr Phe  
                     370                      375                      380  
 Tyr Val Ile Met Pro Ser His Ser Leu Thr Leu Leu Val Lys Ala Val  
     385                      390                      395                      400  
 Ala Thr Arg Glu Leu Met Leu Pro Ser Thr Phe Pro Leu Leu Pro Glu  
                     405                      410                      415  
 Asp Pro His Asp Asp Ser Leu Lys Asn Ser Met Leu Asp Ser Leu Glu  
                     420                      425                      430  
 Leu Glu Pro Thr Tyr Asn Pro Leu His Val Gln Ser His Leu Tyr Ser  
                     435                      440                      445  
 His Leu Ser Ser Ile Tyr Ala Lys Pro Gln Gly Arg Leu His Pro His  
                     450                      455                      460  
 Trp Glu Ser Arg Ala Pro Arg Lys Thr Gly Gln Leu Gln Thr Asn Arg  
     465                      470                      475                      480  
 Ala Arg Ala Thr Val Ala Pro Leu Pro Met Thr Pro Val Pro Gly Arg  
                     485                      490                      495  
 Ala Ser Lys Met Pro Ala Ala Ser Lys Ser Ser Ser Asp Ala Phe Phe  
                     500                      505                      510  
 Leu Pro Ser Glu Trp Glu Lys Asp Pro Ser Arg Pro  
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<211>1647

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(49)..(1639)

<400>145

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54

Met His  
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cct ggg cga act act ggt aaa ggg ccc tct act cac act cag att gac	102
Pro Gly Arg Thr Thr Gly Lys Gly Pro Ser Thr His Thr Gln Ile Asp	
5 10 15	
cag caa cct cca cgg ctt ctc att gtg cac att gct cta ccg tcc tgg	150
Gln Gln Pro Pro Arg Leu Leu Ile Val His Ile Ala Leu Pro Ser Trp	
20 25 30	
gct gac atc tgc acc aac ctc tgt gag gct ctg cag aac ttc ttc tct	198
Ala Asp Ile Cys Thr Asn Leu Cys Glu Ala Leu Gln Asn Phe Phe Ser	
35 40 45 50	
cta gcc tgc agc ttg atg ggc ccc agc cgc atg tcc ctg ttc agt tta	246
Leu Ala Cys Ser Leu Met Gly Pro Ser Arg Met Ser Leu Phe Ser Leu	
55 60 65	
tac atg gta caa gat cag cat gag tgc atc ctc cct ttt gtg caa gtg	294
Tyr Met Val Gln Asp Gln His Glu Cys Ile Leu Pro Phe Val Gln Val	
70 75 80	
aaa ggg aac ttt gct agg ttg cag acc tgc atc tca gaa ctc cgc atg	342
Lys Gly Asn Phe Ala Arg Leu Gln Thr Cys Ile Ser Glu Leu Arg Met	
85 90 95	
tta cag aga gaa ggg tgt ttc aga tca caa ggt gct tct ctg cgg ctg	390
Leu Gln Arg Glu Gly Cys Phe Arg Ser Gln Gly Ala Ser Leu Arg Leu	
100 105 110	
gca gta gag gat ggg ctc cag caa ttc aaa caa tac agc aga cat gtg	438
Ala Val Glu Asp Gly Leu Gln Gln Phe Lys Gln Tyr Ser Arg His Val	
115 120 125 130	
acc aca agg gca gct ctg acc tat acc tcc ctg gag att act att ctg	486
Thr Thr Arg Ala Ala Leu Thr Tyr Thr Ser Leu Glu Ile Thr Ile Leu	
135 140 145	
act tct cag cct gga aaa gag gtg gtc aaa cag ttg gag gaa ggg ttg	534
Thr Ser Gln Pro Gly Lys Glu Val Val Lys Gln Leu Glu Glu Gly Leu	
150 155 160	
aaa gat aca gac cta gcc aga gtc agg agg ttt cag gtc gtt gag gtc	582
Lys Asp Thr Asp Leu Ala Arg Val Arg Arg Phe Gln Val Val Glu Val	
165 170 175	
aca aag gga atc cta gag cac gtg gac tca gcg tct cct gtt gag gat	630
Thr Lys Gly Ile Leu Glu His Val Asp Ser Ala Ser Pro Val Glu Asp	
180 185 190	
acc agc aat gat gag agt tct att ctg gga act gac att gac ctt cag	678
Thr Ser Asn Asp Glu Ser Ser Ile Leu Gly Thr Asp Ile Asp Leu Gln	
195 200 205 210	
act ata gac aat gat atc gtc agc atg gag att ttc ttc aaa gcc tgg	726
Thr Ile Asp Asn Asp Ile Val Ser Met Glu Ile Phe Phe Lys Ala Trp	

215	220	225	
cta cat aac agt gga aca gac cag gaa caa atc cat ctt ctt tct			774
Leu His Asn Ser Gly Thr Asp Gln Glu Gln Ile His Leu Leu Leu Ser			
230	235	240	
tca cag tgt ttc agc aac att tcc aga ccc aga gat aat cca atg tgt			822
Ser Gln Cys Phe Ser Asn Ile Ser Arg Pro Arg Asp Asn Pro Met Cys			
245	250	255	
ctg aaa tgt gat ctc caa gag cga ctg ctc tgc cca tcc cta ctc gct			870
Leu Lys Cys Asp Leu Gln Glu Arg Leu Leu Cys Pro Ser Leu Leu Ala			
260	265	270	
ggc aca gct gac ggc tcc ttg aga atg gat gac cct aaa gga gac ttc			918
Gly Thr Ala Asp Gly Ser Leu Arg Met Asp Asp Pro Lys Gly Asp Phe			
275	280	285	290
atc aca ctc cac cag atg gct tcc cag tca tcg gcc tct cat tac aag			966
Ile Thr Leu His Gln Met Ala Ser Gln Ser Ser Ala Ser His Tyr Lys			
295	300	305	
ctc caa gtg atc aag gct tta aaa tct agc ggg ctc tgc gag tca ttg			1014
Leu Gln Val Ile Lys Ala Leu Lys Ser Ser Gly Leu Cys Glu Ser Leu			
310	315	320	
aca tat gga ctc ccg ttc atc ctc aga cct aca agc tgt tgg cag ctg			1062
Thr Tyr Gly Leu Pro Phe Ile Leu Arg Pro Thr Ser Cys Trp Gln Leu			
325	330	335	
gac tgg gat gag ctg gag aca aat cag caa cat ttc cat gct ttg tgt			1110
Asp Trp Asp Glu Leu Glu Thr Asn Gln Gln His Phe His Ala Leu Cys			
340	345	350	
cac agc ctg ctg aaa agg gaa tgg ctg ctg tta gcc aag ggg gaa cca			1158
His Ser Leu Leu Lys Arg Glu Trp Leu Leu Leu Ala Lys Gly Glu Pro			
355	360	365	370
ccg ggc cca gga cac agc cag aga att cct gcc agc acc ttc tat gtg			1206
Pro Gly Pro Gly His Ser Gln Arg Ile Pro Ala Ser Thr Phe Tyr Val			
375	380	385	
atc atg ccg tca cac tcc ctc aca ctg ctg gta aag gcg gtg gcc acg			1254
Ile Met Pro Ser His Ser Leu Thr Leu Leu Val Lys Ala Val Ala Thr			
390	395	400	
cgg gaa ctg atg ctg ccc agc acc ttc ccc ctg ctg cct gag gac cca			1302
Arg Glu Leu Met Leu Pro Ser Thr Phe Pro Leu Leu Pro Glu Asp Pro			
405	410	415	
cat gat gat agc ctt aag aat gtg gag agc atg ctg gac agc ctg gag			1350
His Asp Asp Ser Leu Lys Asn Val Glu Ser Met Leu Asp Ser Leu Glu			
420	425	430	
ctg gag ccc acc tac aac ccc ttg cat gtt caa agc cac ctg tac tca			1398
Leu Glu Pro Thr Tyr Asn Pro Leu His Val Gln Ser His Leu Tyr Ser			
435	440	445	450



cac ctg agc agc atc tat gcc aag cct cag ggg cgg ctc cac cca cac 1446  
 His Leu Ser Ser Ile Tyr Ala Lys Pro Gln Gly Arg Leu His Pro His  
 455 460 465  
 tgg gag agc cga gct ccg aga aag cat ccc tgc aag act ggg cag ttg 1494  
 Trp Glu Ser Arg Ala Pro Arg Lys His Pro Cys Lys Thr Gly Gln Leu  
 470 475 480  
 cag acc aac cga gct cga gct act gtg gcc ccc ctg cct atg act cct 1542  
 Gln Thr Asn Arg Ala Arg Ala Thr Val Ala Pro Leu Pro Met Thr Pro  
 485 490 495  
 gtc cca ggc aga gcc tcc aag atg cca gca gcc agc aaa tct tcc tca 1590  
 Val Pro Gly Arg Ala Ser Lys Met Pro Ala Ala Ser Lys Ser Ser Ser  
 500 505 510  
 gat gcc ttc ttc ctg cct tca gag tgg gag aag gat ccc tca agg ccc 1638  
 Asp Ala Phe Phe Leu Pro Ser Glu Trp Glu Lys Asp Pro Ser Arg Pro  
 515 520 525 530  
 taagtcacc 1647

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 <212>PRT  
 <213> Homo sapiens

<400>146  
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 Ser Trp Ala Asp Ile Cys Thr Asn Leu Cys Glu Ala Leu Gln Asn Phe  
 35 40 45  
 Phe Ser Leu Ala Cys Ser Leu Met Gly Pro Ser Arg Met Ser Leu Phe  
 50 55 60  
 Ser Leu Tyr Met Val Gln Asp Gln His Glu Cys Ile Leu Pro Phe Val  
 65 70 75 80  
 Gln Val Lys Gly Asn Phe Ala Arg Leu Gln Thr Cys Ile Ser Glu Leu  
 85 90 95  
 Arg Met Leu Gln Arg Glu Gly Cys Phe Arg Ser Gln Gly Ala Ser Leu  
 100 105 110  
 Arg Leu Ala Val Glu Asp Gly Leu Gln Gln Phe Lys Gln Tyr Ser Arg  
 115 120 125  
 His Val Thr Thr Arg Ala Ala Leu Thr Tyr Thr Ser Leu Glu Ile Thr  
 130 135 140

Ile Leu Thr Ser Gln Pro Gly Lys Glu Val Val Lys Gln Leu Glu Glu  
 145 150 155 160  
 Gly Leu Lys Asp Thr Asp Leu Ala Arg Val Arg Arg Phe Gln Val Val  
 165 170 175  
 Glu Val Thr Lys Gly Ile Leu Glu His Val Asp Ser Ala Ser Pro Val  
 180 185 190  
 Glu Asp Thr Ser Asn Asp Glu Ser Ser Ile Leu Gly Thr Asp Ile Asp  
 195 200 205  
 Leu Gln Thr Ile Asp Asn Asp Ile Val Ser Met Glu Ile Phe Phe Lys  
 210 215 220  
 Ala Trp Leu His Asn Ser Gly Thr Asp Gln Glu Gln Ile His Leu Leu  
 225 230 235 240  
 Leu Ser Ser Gln Cys Phe Ser Asn Ile Ser Arg Pro Arg Asp Asn Pro  
 245 250 255  
 Met Cys Leu Lys Cys Asp Leu Gln Glu Arg Leu Leu Cys Pro Ser Leu  
 260 265 270  
 Leu Ala Gly Thr Ala Asp Gly Ser Leu Arg Met Asp Asp Pro Lys Gly  
 275 280 285  
 Asp Phe Ile Thr Leu His Gln Met Ala Ser Gln Ser Ser Ala Ser His  
 290 295 300  
 Tyr Lys Leu Gln Val Ile Lys Ala Leu Lys Ser Ser Gly Leu Cys Glu  
 305 310 315 320  
 Ser Leu Thr Tyr Gly Leu Pro Phe Ile Leu Arg Pro Thr Ser Cys Trp  
 325 330 335  
 Gln Leu Asp Trp Asp Glu Leu Glu Thr Asn Gln Gln His Phe His Ala  
 340 345 350  
 Leu Cys His Ser Leu Leu Lys Arg Glu Trp Leu Leu Leu Ala Lys Gly  
 355 360 365  
 Glu Pro Pro Gly Pro Gly His Ser Gln Arg Ile Pro Ala Ser Thr Phe  
 370 375 380  
 Tyr Val Ile Met Pro Ser His Ser Leu Thr Leu Leu Val Lys Ala Val  
 385 390 395 400  
 Ala Thr Arg Glu Leu Met Leu Pro Ser Thr Phe Pro Leu Leu Pro Glu  
 405 410 415  
 Asp Pro His Asp Asp Ser Leu Lys Asn Val Glu Ser Met Leu Asp Ser  
 420 425 430  
 Leu Glu Leu Glu Pro Thr Tyr Asn Pro Leu His Val Gln Ser His Leu  
 435 440 445

Tyr Ser His Leu Ser Ser Ile Tyr Ala Lys Pro Gln Gly Arg Leu His  
 450 455 460

Pro His Trp Glu Ser Arg Ala Pro Arg Lys His Pro Cys Lys Thr Gly  
 465 470 475 480

Gln Leu Gln Thr Asn Arg Ala Arg Ala Thr Val Ala Pro Leu Pro Met  
 485 490 495

Thr Pro Val Pro Gly Arg Ala Ser Lys Met Pro Ala Ala Ser Lys Ser  
 500 505 510

Ser Ser Asp Ala Phe Phe Leu Pro Ser Glu Trp Glu Lys Asp Pro Ser  
 515 520 525

Arg Pro  
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<211>960

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(31)..(943)

<400>147

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ctt gca gat gcc cag aac caa aga aga ggt ctg cct ggt ttt ctt cct 99  
 Leu Ala Asp Ala Gln Asn Gln Arg Arg Gly Leu Pro Gly Phe Leu Pro  
 10 15 20

gga gct cca gac cca gac caa agc ctt cct gcc tct tcc aat cca ggg 147  
 Gly Ala Pro Asp Pro Asp Gln Ser Leu Pro Ala Ser Ser Asn Pro Gly  
 25 30 35

aac caa gca tgg cag ctg agt ctc cct ctg cca agc agt ttc ctg cca 195  
 Asn Gln Ala Trp Gln Leu Ser Leu Pro Leu Pro Ser Ser Phe Leu Pro  
 40 45 50 55

aca gtc agt ctc cct cct ggt cta gaa tat tta agc cag tta gac ctg 243  
 Thr Val Ser Leu Pro Pro Gly Leu Glu Tyr Leu Ser Gln Leu Asp Leu  
 60 65 70

ata att ata cac cag cag gtg gag ctg ctt gtg ata ctt ggt act gag 291  
 Ile Ile Ile His Gln Gln Val Glu Leu Leu Val Ile Leu Gly Thr Glu  
 75 80 85

acc tcc aac aaa tat gag att aaa aac agc ttg gga caa aga att tac 339  
 Thr Ser Asn Lys Tyr Glu Ile Lys Asn Ser Leu Gly Gln Arg Ile Tyr  
 90 95 100

ttt gca gtg gag gaa agc atc tgc ttc aat cgt act ttc tgt tcc act 387

Phe Ala Val Glu Glu Ser Ile Cys Phe Asn Arg Thr Phe Cys Ser Thr  
105 110 115  
ctg cga tct tgc acc ctg agg atc aca gat aac tca ggt cga gag gtc 435  
Leu Arg Ser Cys Thr Leu Arg Ile Thr Asp Asn Ser Gly Arg Glu Val  
120 125 130 135  
att aca gtg aac agg ccc ttg aga tgt aac agc tgc tgg tgc cct tgc 483  
Ile Thr Val Asn Arg Pro Leu Arg Cys Asn Ser Cys Trp Cys Pro Cys  
140 145 150  
tac cta caa gag tta gaa atc caa gcc cct cct ggt act ata gtt ggt 531  
Tyr Leu Gln Glu Leu Glu Ile Gln Ala Pro Pro Gly Thr Ile Val Gly  
155 160 165  
tac gtt acg cag aag tgg gac ccc ttt ctg cct aaa ttc aca atc caa 579  
Tyr Val Thr Gln Lys Trp Asp Pro Phe Leu Pro Lys Phe Thr Ile Gln  
170 175 180  
aat gca aac aaa gaa gat att ttg aaa att gtt ggt cct tgt gtg aca 627  
Asn Ala Asn Lys Glu Asp Ile Leu Lys Ile Val Gly Pro Cys Val Thr  
185 190 195  
tgt ggc tgt ttt ggc gat gtg gat ttt gag aag gtg aaa acc att aat 675  
Cys Gly Cys Phe Gly Asp Val Asp Phe Glu Lys Val Lys Thr Ile Asn  
200 205 210 215  
gaa aag ctt aca att ggg aag att tca aag tac tgg tca gga ttt gta 723  
Glu Lys Leu Thr Ile Gly Lys Ile Ser Lys Tyr Trp Ser Gly Phe Val  
220 225 230  
aat gat gtc ttc aca aat gct gac aat ttc gga att cat gtt cct gca 771  
Asn Asp Val Phe Thr Asn Ala Asp Asn Phe Gly Ile His Val Pro Ala  
235 240 245  
gat cta gat gta aca gtc aaa gca gca atg atc ggt gcc tgt ttt ctc 819  
Asp Leu Asp Val Thr Val Lys Ala Ala Met Ile Gly Ala Cys Phe Leu  
250 255 260  
ttt gta agt atg ggc ttt gag agc cca gcc ctc caa gat gag aaa gag 867  
Phe Val Ser Met Gly Phe Glu Ser Pro Ala Leu Gln Asp Glu Lys Glu  
265 270 275  
tca gtg tgg caa ttc aaa aaa tca gag tgc cct ctc acc tcc aaa caa 915  
Ser Val Trp Gln Phe Lys Lys Ser Glu Cys Pro Leu Thr Ser Lys Gln  
280 285 290 295  
gcc cac ttg ttc ccc agc gat ggt tct tagccagact gaaatgac 960  
Ala His Leu Phe Pro Ser Asp Gly Ser  
300

<210>148

<211>304

<212>PRT

<213> Homo sapiens

<400>148

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 Pro Ala Ser Ser Asn Pro Gly Asn Gln Ala Trp Gln Leu Ser Leu Pro  
 35 40 45  
 Leu Pro Ser Ser Phe Leu Pro Thr Val Ser Leu Pro Pro Gly Leu Glu  
 50 55 60  
 Tyr Leu Ser Gln Leu Asp Leu Ile Ile Ile His Gln Gln Val Glu Leu  
 65 70 75 80  
 Leu Val Ile Leu Gly Thr Glu Thr Ser Asn Lys Tyr Glu Ile Lys Asn  
 85 90 95  
 Ser Leu Gly Gln Arg Ile Tyr Phe Ala Val Glu Glu Ser Ile Cys Phe  
 100 105 110  
 Asn Arg Thr Phe Cys Ser Thr Leu Arg Ser Cys Thr Leu Arg Ile Thr  
 115 120 125  
 Asp Asn Ser Gly Arg Glu Val Ile Thr Val Asn Arg Pro Leu Arg Cys  
 130 135 140  
 Asn Ser Cys Trp Cys Pro Cys Tyr Leu Gln Glu Leu Glu Ile Gln Ala  
 145 150 155 160  
 Pro Pro Gly Thr Ile Val Gly Tyr Val Thr Gln Lys Trp Asp Pro Phe  
 165 170 175  
 Leu Pro Lys Phe Thr Ile Gln Asn Ala Asn Lys Glu Asp Ile Leu Lys  
 180 185 190  
 Ile Val Gly Pro Cys Val Thr Cys Gly Cys Phe Gly Asp Val Asp Phe  
 195 200 205  
 Glu Lys Val Lys Thr Ile Asn Glu Lys Leu Thr Ile Gly Lys Ile Ser  
 210 215 220  
 Lys Tyr Trp Ser Gly Phe Val Asn Asp Val Phe Thr Asn Ala Asp Asn  
 225 230 235 240  
 Phe Gly Ile His Val Pro Ala Asp Leu Asp Val Thr Val Lys Ala Ala  
 245 250 255  
 Met Ile Gly Ala Cys Phe Leu Phe Val Ser Met Gly Phe Glu Ser Pro  
 260 265 270  
 Ala Leu Gln Asp Glu Lys Glu Ser Val Trp Gln Phe Lys Lys Ser Glu  
 275 280 285  
 Cys Pro Leu Thr Ser Lys Gln Ala His Leu Phe Pro Ser Asp Gly Ser  
 290 295 300

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 <212>DNA  
 <213> Homo sapiens

<220>  
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agt gag tta gaa tgg ggc ttg tta ccc cca gaa gaa ttt tcc caa gtg      99
Ser Glu Leu Glu Trp Gly Leu Leu Pro Pro Glu Glu Phe Ser Gln Val
          10           15           20

aat gga atc att ctt caa aag aaa atg tgc gat ttc tgg gat aag atc      147
Asn Gly Ile Ile Leu Gln Lys Lys Met Cys Asp Phe Trp Asp Lys Ile
          25           30           35

tgg aac ttc caa gcc aag cct gat gac ctg ctc att gct tct tac ccc      195
Trp Asn Phe Gln Ala Lys Pro Asp Asp Leu Leu Ile Ala Ser Tyr Pro
          40           45           50

aaa gca ggt acc act tgg aca cag gaa att gta gat ctg ata caa aat      243
Lys Ala Gly Thr Thr Trp Thr Gln Glu Ile Val Asp Leu Ile Gln Asn
          55           60           65           70

gat ggc gat att gag aaa agc agg cgc gct tcc att caa ctt caa cac      291
Asp Gly Asp Ile Glu Lys Ser Arg Arg Ala Ser Ile Gln Leu Gln His
          75           80           85

cct ttc ctg gag tgg ata aga atg aca cac gcc agg aaa att ttt gca      339
Pro Phe Leu Glu Trp Ile Arg Met Thr His Ala Arg Lys Ile Phe Ala
          90           95           100

ggg att gac cag gct aac aca atg cct tcc cca agg acc ctg aaa act      387
Gly Ile Asp Gln Ala Asn Thr Met Pro Ser Pro Arg Thr Leu Lys Thr
          105           110           115

cat ctt cct gta caa cta ctg cct cca tcc ttc tgg gag gaa aac tgt      435
His Leu Pro Val Gln Leu Leu Pro Pro Ser Phe Trp Glu Glu Asn Cys
          120           125           130

aag ata atc tat gtg gca aga aat gcc aag gat aac ctg gtg tcc tac      483
Lys Ile Ile Tyr Val Ala Arg Asn Ala Lys Asp Asn Leu Val Ser Tyr
          135           140           145           150

tac cat ttt caa agg atg agc aaa gca ctc cct gac gtt ttg aca gtg      531
Tyr His Phe Gln Arg Met Ser Lys Ala Leu Pro Asp Val Leu Thr Val
          155           160           165

gga gaa tac att atg tgt ggg gaa gtg ttg tgg gga ata tgg gaa gag      579
Gly Glu Tyr Ile Met Cys Gly Glu Val Leu Trp Gly Ile Trp Glu Glu
          170           175           180

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att cgg act tgg caa ctg cat agg ttg ttc tgc tgg ttc ttt gat cat 627  
 Ile Arg Thr Trp Gln Leu His Arg Leu Phe Cys Trp Phe Phe Asp His  
 185 190 195

gct tct gag aat cct aga aag ttc aaa agg ata atg gaa ttt atg ggg 675  
 Ala Ser Glu Asn Pro Arg Lys Phe Lys Arg Ile Met Glu Phe Met Gly  
 200 205 210

aat aaa cta gat gaa gat cct gtc aaa aga att gtt cag cac aca tct 723  
 Asn Lys Leu Asp Glu Asp Pro Val Lys Arg Ile Val Gln His Thr Ser  
 215 220 225 230

ttt gaa agt aag aag aaa aac cag atg acc aac tat gta atg ata acc 771  
 Phe Glu Ser Lys Lys Lys Asn Gln Met Thr Asn Tyr Val Met Ile Thr  
 235 240 245

tgt gac atc atg gac cac tcc atc tcc cca ttt atg agg aaa ggg acc 819  
 Cys Asp Ile Met Asp His Ser Ile Ser Pro Phe Met Arg Lys Gly Thr  
 250 255 260

gtt gga gag tgg aag gat tac ttc tca gca gca cag aat aag aga ttt 867  
 Val Gly Glu Trp Lys Asp Tyr Phe Ser Ala Ala Gln Asn Lys Arg Phe  
 265 270 275

gat gaa gac agg aaa atg gct gac tct tct ctg acc ttc cac acg gag 915  
 Asp Glu Asp Arg Lys Met Ala Asp Ser Ser Leu Thr Phe His Thr Glu  
 280 285 290

ctc taaagagaga gagacaaagt ctatactaca caggggcac 957  
 Leu  
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Asp Phe Trp Asp Lys Ile Trp Asn Phe Gln Ala Lys Pro Asp Asp Leu  
 35 40 45

Leu Ile Ala Ser Tyr Pro Lys Ala Gly Thr Thr Trp Thr Gln Glu Ile  
 50 55 60

Val Asp Leu Ile Gln Asn Asp Gly Asp Ile Glu Lys Ser Arg Arg Ala  
 65 70 75 80

Ser Ile Gln Leu Gln His Pro Phe Leu Glu Trp Ile Arg Met Thr His  
 85 90 95

Ala Arg Lys Ile Phe Ala Gly Ile Asp Gln Ala Asn Thr Met Pro Ser

100	105	110	
Pro Arg Thr Leu Lys Thr His Leu	Pro Val Gln Leu Leu	Pro Pro Ser	
115	120	125	
Phe Trp Glu Glu Asn Cys Lys Ile Ile Tyr Val Ala Arg Asn Ala Lys			
130	135	140	
Asp Asn Leu Val Ser Tyr Tyr His Phe Gln Arg Met Ser Lys Ala Leu			
145	150	155	160
Pro Asp Val Leu Thr Val Gly Glu Tyr Ile Met Cys Gly Glu Val Leu			
165	170	175	
Trp Gly Ile Trp Glu Glu Ile Arg Thr Trp Gln Leu His Arg Leu Phe			
180	185	190	
Cys Trp Phe Phe Asp His Ala Ser Glu Asn Pro Arg Lys Phe Lys Arg			
195	200	205	
Ile Met Glu Phe Met Gly Asn Lys Leu Asp Glu Asp Pro Val Lys Arg			
210	215	220	
Ile Val Gln His Thr Ser Phe Glu Ser Lys Lys Lys Asn Gln Met Thr			
225	230	235	240
Asn Tyr Val Met Ile Thr Cys Asp Ile Met Asp His Ser Ile Ser Pro			
245	250	255	
Phe Met Arg Lys Gly Thr Val Gly Glu Trp Lys Asp Tyr Phe Ser Ala			
260	265	270	
Ala Gln Asn Lys Arg Phe Asp Glu Asp Arg Lys Met Ala Asp Ser Ser			
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Leu Thr Phe His Thr Glu Leu			
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gaaggtttct ctgtttgaag ggctttaaac ttataacaaa gaaaataaaa atg acg			106
		Met Thr	
act tcg tct atc aga cgg cag atg aaa aac atc gtg aac aat tac tca			154
Thr Ser Ser Ile Arg Arg Gln Met Lys Asn Ile Val Asn Asn Tyr Ser			



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gag gca gaa atc aaa gtc	cgg gaa gcc acc tcc	aat gac ccg tgg ggc	202
Glu Ala Glu Ile Lys Val	Arg Glu Ala Thr Ser	Asn Asp Pro Trp Gly	
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ccg tcc agt tct ctg atg	acc gag att gcc gac	ctg acc tac aac gtg	250
Pro Ser Ser Ser Leu Met	Thr Glu Ile Ala Asp	Leu Thr Tyr Asn Val	
35	40	45	50
gtg gcc ttc tcg gag atc	atg agc atg gtg tgg	aag cgg ctg aat gac	298
Val Ala Phe Ser Glu Ile	Met Ser Met Val Trp	Lys Arg Leu Asn Asp	
55	60	65	
cat ggc aag aac tgg cgg	cat gtg tac aag gcg	ctg acc ctg ctg gac	346
His Gly Lys Asn Trp Arg	His Val Tyr Lys Ala	Leu Thr Leu Leu Asp	
70	75	80	
tac ctc atc aag aca ggc	tcc gaa cgt gtg gcc	cag cag tgc cgg gag	394
Tyr Leu Ile Lys Thr Gly	Ser Glu Arg Val Ala	Gln Gln Cys Arg Glu	
85	90	95	
aac atc ttc gcc atc cag	acc ctg aag gac ttc	cag tac att gac cga	442
Asn Ile Phe Ala Ile Gln	Thr Leu Lys Asp Phe	Gln Tyr Ile Asp Arg	
100	105	110	
gat ggc aag gac cag ggc	atc aat gtg cgt gag	aag tca aag caa ctg	490
Asp Gly Lys Asp Gln Gly	Ile Asn Val Arg Glu	Lys Ser Lys Gln Leu	
115	120	125	130
gtg gct ctc ctc aag gac	gag gaa cgg ttg aag	gct gag agg gcc cag	538
Val Ala Leu Leu Lys Asp	Glu Glu Arg Leu Lys	Ala Glu Arg Ala Gln	
135	140	145	
gct ctc aaa acc aaa gag	cgc atg gcc cag gtt	gcc act ggc atg ggc	586
Ala Leu Lys Thr Lys Glu	Arg Met Ala Gln Val	Ala Thr Gly Met Gly	
150	155	160	
agc aac cag atc acc ttt	ggg cga ggc tcc agc	cag ccc aac ctc tcc	634
Ser Asn Gln Ile Thr Phe	Gly Arg Gly Ser Ser	Gln Pro Asn Leu Ser	
165	170	175	
acc agc cac tcg gag cag	gag tat ggc aag gcc	ggg ggc tcc ccg gcc	682
Thr Ser His Ser Glu Gln	Glu Tyr Gly Lys Ala	Gly Gly Ser Pro Ala	
180	185	190	
tcc tac cat ggc tcc acc	tcc ccg cga gtg tcc	tcc gag ctg gag caa	730
Ser Tyr His Gly Ser Thr	Ser Pro Arg Val Ser	Ser Ser Glu Leu Glu	
195	200	205	210
gcc cgg ccc cag act agt	gga gaa gag gag ctt	cag ctg cag ctg gca	778
Ala Arg Pro Gln Thr Ser	Gly Glu Glu Glu Leu	Gln Leu Gln Leu Ala	
215	220	225	
ctt gcc atg agc aga gaa	gtg gct gag cag gaa	gaa cgc ctc agg cgg	826
Leu Ala Met Ser Arg Glu	Val Ala Glu Gln Glu	Glu Arg Leu Arg Arg	
230	235	240	

ggg gat gac ctc aga tta cag atg gcc ctg gaa gaa agc cga agg gac	874
Gly Asp Asp Leu Arg Leu Gln Met Ala Leu Glu Glu Ser Arg Arg Asp	
245 250 255	
aca gtt aaa att cca aaa aag aaa gag cag act acg ctg ttg gat tta	922
Thr Val Lys Ile Pro Lys Lys Lys Glu Gln Thr Thr Leu Leu Asp Leu	
260 265 270	
atg gat gct ctc ccc agc tcg ggc ccc gcg gcc cag aaa gca gag ccc	970
Met Asp Ala Leu Pro Ser Ser Gly Pro Ala Ala Gln Lys Ala Glu Pro	
275 280 285 290	
tgg ggc ccg tca gcc tcc act aac cag acc aac ccc tgg ggc ggg cca	1018
Trp Gly Pro Ser Ala Ser Thr Asn Gln Thr Asn Pro Trp Gly Gly Pro	
295 300 305	
gcg gct cct gcg agt act tca gac ccc tgg cca tcg ttt ggt acc aag	1066
Ala Ala Pro Ala Ser Thr Ser Asp Pro Trp Pro Ser Phe Gly Thr Lys	
310 315 320	
cca gct gcc tcc att gac cca tgg ggg gtg ccc act gga gcc acc gca	1114
Pro Ala Ala Ser Ile Asp Pro Trp Gly Val Pro Thr Gly Ala Thr Ala	
325 330 335	
caa tct gtc ccc aag aac tcg gac ccc tgg gca gct tca cag cag cct	1162
Gln Ser Val Pro Lys Asn Ser Asp Pro Trp Ala Ala Ser Gln Gln Pro	
340 345 350	
gcc tcc agt gct ggg aaa aga gct tct gac gcg tgg ggc gca gtc tcc	1210
Ala Ser Ser Ala Gly Lys Arg Ala Ser Asp Ala Trp Gly Ala Val Ser	
355 360 365 370	
acc acc aag ccc gtg tct gtc tct ggg tcc ttt gag ctc ttc agt aat	1258
Thr Thr Lys Pro Val Ser Val Ser Gly Ser Phe Glu Leu Phe Ser Asn	
375 380 385	
ctg aat ggt aca att aaa gat gac ttt tct gaa ttt gac aac ctt cgg	1306
Leu Asn Gly Thr Ile Lys Asp Asp Phe Ser Glu Phe Asp Asn Leu Arg	
390 395 400	
act tca aaa aaa aca gcc gaa tct gtg acc tct ctg cca tcc caa aac	1354
Thr Ser Lys Lys Thr Ala Glu Ser Val Thr Ser Leu Pro Ser Gln Asn	
405 410 415	
aat gga act acc agc cct gac ccc ttt gag tct caa ccc ctg act gtc	1402
Asn Gly Thr Thr Ser Pro Asp Pro Phe Glu Ser Gln Pro Leu Thr Val	
420 425 430	
gcc tca agc aag ccc agc agt gcc cgg aaa aca cct gag tcc ttc ctg	1450
Ala Ser Ser Lys Pro Ser Ser Ala Arg Lys Thr Pro Glu Ser Phe Leu	
435 440 445 450	
ggc ccc aac gcg gcc ctg gtg aac ctg gac tca ctg gtg acc agg cct	1498
Gly Pro Asn Ala Ala Leu Val Asn Leu Asp Ser Leu Val Thr Arg Pro	
455 460 465	

gcc cca cca gcc cag tcc ctc aac cct ttc ctg gca cca ggt gct ccc 1546  
 Ala Pro Pro Ala Gln Ser Leu Asn Pro Phe Leu Ala Pro Gly Ala Pro  
 470 475 480

gcc acc tcg gcc cct gtt aac cct ttc cag gtg aac cag ccc cag ccg 1594  
 Ala Thr Ser Ala Pro Val Asn Pro Phe Gln Val Asn Gln Pro Gln Pro  
 485 490 495

ctg aca ctg aac cag ctt cgg ggg agc cca gtc ctg ggg acc agc aca 1642  
 Leu Thr Leu Asn Gln Leu Arg Gly Ser Pro Val Leu Gly Thr Ser Thr  
 500 505 510

tcc ttt ggg cct ggc cca gga gtg gag tcc atg gct gtg gcc tcg atg 1690  
 Ser Phe Gly Pro Gly Pro Gly Val Glu Ser Met Ala Val Ala Ser Met  
 515 520 525 530

acc tcc gcg gcc cca cag cca gct ctg ggg gcc act ggt tcc tct ctg 1738  
 Thr Ser Ala Ala Pro Gln Pro Ala Leu Gly Ala Thr Gly Ser Ser Leu  
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aca cca ctg ggc cct gca atg atg aac atg gtg ggc agt gtg ggt ata 1786  
 Thr Pro Leu Gly Pro Ala Met Met Asn Met Val Gly Ser Val Gly Ile  
 550 555 560

ccc cca tca gca gcc cag gcc act ggc aca acc aac cct ttc ctt ctc 1834  
 Pro Pro Ser Ala Ala Gln Ala Thr Gly Thr Thr Asn Pro Phe Leu Leu  
 565 570 575

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<400>152

Met Thr Thr Ser Ser Ile Arg Arg Gln Met Lys Asn Ile Val Asn Asn  
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 20 25 30

Trp Gly Pro Ser Ser Ser Leu Met Thr Glu Ile Ala Asp Leu Thr Tyr  
 35 40 45

Asn Val Val Ala Phe Ser Glu Ile Met Ser Met Val Trp Lys Arg Leu  
 50 55 60

Asn Asp His Gly Lys Asn Trp Arg His Val Tyr Lys Ala Leu Thr Leu  
 65 70 75 80

Leu Asp Tyr Leu Ile Lys Thr Gly Ser Glu Arg Val Ala Gln Gln Cys  
 85 90 95

Arg Glu Asn Ile Phe Ala Ile Gln Thr Leu Lys Asp Phe Gln Tyr Ile  
 100 105 110

Asp Arg Asp Gly Lys Asp Gln Gly Ile Asn Val Arg Glu Lys Ser Lys  
 115 120 125

Gln Leu Val Ala Leu Leu Lys Asp Glu Glu Arg Leu Lys Ala Glu Arg  
 130 135 140

Ala Gln Ala Leu Lys Thr Lys Glu Arg Met Ala Gln Val Ala Thr Gly  
 145 150 155 160

Met Gly Ser Asn Gln Ile Thr Phe Gly Arg Gly Ser Ser Gln Pro Asn  
 165 170 175

Leu Ser Thr Ser His Ser Glu Gln Glu Tyr Gly Lys Ala Gly Gly Ser  
 180 185 190

Pro Ala Ser Tyr His Gly Ser Thr Ser Pro Arg Val Ser Ser Glu Leu  
 195 200 205

Glu Gln Ala Arg Pro Gln Thr Ser Gly Glu Glu Glu Leu Gln Leu Gln  
 210 215 220

Leu Ala Leu Ala Met Ser Arg Glu Val Ala Glu Gln Glu Glu Arg Leu  
 225 230 235 240

Arg Arg Gly Asp Asp Leu Arg Leu Gln Met Ala Leu Glu Glu Ser Arg  
 245 250 255

Arg Asp Thr Val Lys Ile Pro Lys Lys Lys Glu Gln Thr Thr Leu Leu  
 260 265 270

Asp Leu Met Asp Ala Leu Pro Ser Ser Gly Pro Ala Ala Gln Lys Ala  
 275 280 285

Glu Pro Trp Gly Pro Ser Ala Ser Thr Asn Gln Thr Asn Pro Trp Gly  
 290 295 300

Gly Pro Ala Ala Pro Ala Ser Thr Ser Asp Pro Trp Pro Ser Phe Gly  
 305 310 315 320

Thr Lys Pro Ala Ala Ser Ile Asp Pro Trp Gly Val Pro Thr Gly Ala  
 325 330 335

Thr Ala Gln Ser Val Pro Lys Asn Ser Asp Pro Trp Ala Ala Ser Gln  
 340 345 350

Gln Pro Ala Ser Ser Ala Gly Lys Arg Ala Ser Asp Ala Trp Gly Ala  
 355 360 365

Val Ser Thr Thr Lys Pro Val Ser Val Ser Gly Ser Phe Glu Leu Phe  
 370 375 380

Ser Asn Leu Asn Gly Thr Ile Lys Asp Asp Phe Ser Glu Phe Asp Asn  
 385 390 395 400  
 Leu Arg Thr Ser Lys Lys Thr Ala Glu Ser Val Thr Ser Leu Pro Ser  
 405 410 415  
 Gln Asn Asn Gly Thr Thr Ser Pro Asp Pro Phe Glu Ser Gln Pro Leu  
 420 425 430  
 Thr Val Ala Ser Ser Lys Pro Ser Ser Ala Arg Lys Thr Pro Glu Ser  
 435 440 445  
 Phe Leu Gly Pro Asn Ala Ala Leu Val Asn Leu Asp Ser Leu Val Thr  
 450 455 460  
 Arg Pro Ala Pro Pro Ala Gln Ser Leu Asn Pro Phe Leu Ala Pro Gly  
 465 470 475 480  
 Ala Pro Ala Thr Ser Ala Pro Val Asn Pro Phe Gln Val Asn Gln Pro  
 485 490 495  
 Gln Pro Leu Thr Leu Asn Gln Leu Arg Gly Ser Pro Val Leu Gly Thr  
 500 505 510  
 Ser Thr Ser Phe Gly Pro Gly Pro Gly Val Glu Ser Met Ala Val Ala  
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 Ser Met Thr Ser Ala Ala Pro Gln Pro Ala Leu Gly Ala Thr Gly Ser  
 530 535 540  
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 ccc ctt tta ttg ctg ggc agt gac aaa ctg tac cat cag tgg ctc tcc 96  
 Pro Leu Leu Leu Leu Gly Ser Asp Lys Leu Tyr His Gln Trp Leu Ser  
 20 25 30  
 act gtc cgg aaa gga agt gga gca att ctg aat act gta aag acc aaa 144

Thr Val Arg Lys Gly Ser Gly Ala Ile Leu Asn Thr Val Lys Thr Lys	
35 40 45	
gca aat ccg gcc atg aag act gtc tac aag ttc gac att gcc gag aat	192
Ala Asn Pro Ala Met Lys Thr Val Tyr Lys Phe Asp Ile Ala Glu Asn	
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ggc tgc gcc ccc acc cca gaa gag cag ctg cca aag act gca ccg tcc	240
Gly Cys Ala Pro Thr Pro Glu Glu Gln Leu Pro Lys Thr Ala Pro Ser	
65 70 75 80	
cca ctg gtg gag gcc aag gac ccc aag ctc cga gaa gac cgg cgg cca	288
Pro Leu Val Glu Ala Lys Asp Pro Lys Leu Arg Glu Asp Arg Arg Pro	
85 90 95	
atc aca gtc cac ttt gga cag gac cag tct gag atg tct ttc agc tca	336
Ile Thr Val His Phe Gly Gln Asp Gln Ser Glu Met Ser Phe Ser Ser	
100 105 110	
gca ctc act cac ggc aaa gag agt gcc cgg acc cag ccg gag aga gtc	384
Ala Leu Thr His Gly Lys Glu Ser Ala Arg Thr Gln Pro Glu Arg Val	
115 120 125	
gtt gac agg act ggc gag ccc ctg aat cct gag cgc gct ctc tcc gga	432
Val Asp Arg Thr Gly Glu Pro Leu Asn Pro Glu Arg Ala Leu Ser Gly	
130 135 140	
gat cat ctc tgg cct gtt acg cac ttg ctc tgg gca acc ctg ggc aag	480
Asp His Leu Trp Pro Val Thr His Leu Leu Trp Ala Thr Leu Gly Lys	
145 150 155 160	
tcc ttg ctt gcc ctc atc tgt gaa atg ggt agc agc cct cgt tcc ctg	528
Ser Leu Leu Ala Leu Ile Cys Glu Met Gly Ser Ser Pro Arg Ser Leu	
165 170 175	
cag agg agc ctt gcg ctg ctg ggg aca ccc cag ctt att tgg gaa act	576
Gln Arg Ser Leu Ala Leu Leu Gly Thr Pro Gln Leu Ile Trp Glu Thr	
180 185 190	
gca acc acc atg gcc gat ggc ccc acc acg ccc tgt cta gga agc aga	624
Ala Thr Thr Met Ala Asp Gly Pro Thr Thr Pro Cys Leu Gly Ser Arg	
195 200 205	
ggc ctc ccc agc agc gtg tcc act gtg ccc ctg gcc ctg cgt gaa gtg	672
Gly Leu Pro Ser Ser Val Ser Thr Val Pro Leu Ala Leu Arg Glu Val	
210 215 220	
cca tca gat gcc ccg cat ccc tgc agc agg gcc ctc gtg act ggc ctc	720
Pro Ser Asp Ala Pro His Pro Cys Ser Arg Ala Leu Val Thr Gly Leu	
225 230 235 240	
aca gat gag gac aca gag gcc cag gga agt cac ttg ctt gcc aaa gtc	768
Thr Asp Glu Asp Thr Glu Ala Gln Gly Ser His Leu Leu Ala Lys Val	
245 250 255	
act cag caa acc atg tct gtc tgg ctc tca gaa aat ggg aaa gaa gcc	816
Thr Gln Gln Thr Met Ser Val Trp Leu Ser Glu Asn Gly Lys Glu Ala	

260	265	270	
tgg gca ttc agc cat gag gga gcc acg gct gta gcc agt gga atg acg			864
Trp Ala Phe Ser His Glu Gly Ala Thr Ala Val Ala Ser Gly Met Thr			
275	280	285	
tac cct cag tcc agg atg tgc acc cgg gca gcc agg tcc cac agc cac			912
Tyr Pro Gln Ser Arg Met Cys Thr Arg Ala Ala Arg Ser His Ser His			
290	295	300	
tac ttt ctt gcc ccc acc act gct ccc aca gtt ccc aga act cag tct			960
Tyr Phe Leu Ala Pro Thr Thr Ala Pro Thr Val Pro Arg Thr Gln Ser			
305	310	315	320
cca gat ctg ggc tcc agg atg cag agg ctg tcc tca ggc ctg gta aag			1008
Pro Asp Leu Gly Ser Arg Met Gln Arg Leu Ser Ser Gly Leu Val Lys			
	325	330	335
ccc ttg cga cac tat gcg gtc ttc ctc tcc gaa gac tcc tct gat gat			1056
Pro Leu Arg His Tyr Ala Val Phe Leu Ser Glu Asp Ser Ser Asp Asp			
	340	345	350
gaa tgc cag cgg gaa gag ggc ccg agc tct ggc ttc acc gag agc ttt			1104
Glu Cys Gln Arg Glu Glu Gly Pro Ser Ser Gly Phe Thr Glu Ser Phe			
	355	360	365
ttc ttc tcc gct ccc ttt gaa tgg ccg cag ccg tat cgg aca ctc agg			1152
Phe Phe Ser Ala Pro Phe Glu Trp Pro Gln Pro Tyr Arg Thr Leu Arg			
	370	375	380
gag tca gac agc gcg gaa ggc gac gag gca gag agt cca gag cag caa			1200
Glu Ser Asp Ser Ala Glu Gly Asp Glu Ala Glu Ser Pro Glu Gln Gln			
385	390	395	400
gtg cgg aag tcc aca ggc cct gtc cca gct ccc cct gac cgg gct gcc			1248
Val Arg Lys Ser Thr Gly Pro Val Pro Ala Pro Pro Asp Arg Ala Ala			
	405	410	415
agc atc gac ctt ctg gaa gac gtc ttc agc aac ctg gac atg gag gcc			1296
Ser Ile Asp Leu Leu Glu Asp Val Phe Ser Asn Leu Asp Met Glu Ala			
	420	425	430
gca ctg cag cca ctg ggc cag gcc aag agc tta gag gac ctt cgt gcc			1344
Ala Leu Gln Pro Leu Gly Gln Ala Lys Ser Leu Glu Asp Leu Arg Ala			
	435	440	445
ccc aaa gac ctg agg gag cag cca ggg acc ttt gac tat cag agg ctg			1392
Pro Lys Asp Leu Arg Glu Gln Pro Gly Thr Phe Asp Tyr Gln Arg Leu			
	450	455	460
gat ctg ggc ggg agt gag agg agc cgc ggg gtg aca gtg gcc ttg aag			1440
Asp Leu Gly Gly Ser Glu Arg Ser Arg Gly Val Thr Val Ala Leu Lys			
465	470	475	480
ctt acc cac ccg tac aac aag ctc tgg agc ctg ggc cag gac gac atg			1488
Leu Thr His Pro Tyr Asn Lys Leu Trp Ser Leu Gly Gln Asp Asp Met			
	485	490	495

gcc atc ccc agc aag ccc cca gct gcc tcc cct gag aag ccc tca gcc	1536
Ala Ile Pro Ser Lys Pro Pro Ala Ala Ser Pro Glu Lys Pro Ser Ala	
500 505 510	
ctg ctc gga aac tcc ctg gcc ctg cct cga agg ccc cag aac cgg gac	1584
Leu Leu Gly Asn Ser Leu Ala Leu Pro Arg Arg Pro Gln Asn Arg Asp	
515 520 525	
agc atc ctg aac ccc agt gac aag gag gag gtg ccc acc cct act ctg	1632
Ser Ile Leu Asn Pro Ser Asp Lys Glu Glu Val Pro Thr Pro Thr Leu	
530 535 540	
ggc agc atc acc atc ccc cgg ccc caa ggc agg aag acc cca gag ctg	1680
Gly Ser Ile Thr Ile Pro Arg Pro Gln Gly Arg Lys Thr Pro Glu Leu	
545 550 555 560	
ggc atc gtg cct cca cgg ccc att ccc cgc cgg gcc aag ctc cag gct	1728
Gly Ile Val Pro Pro Pro Ile Pro Arg Pro Ala Lys Leu Gln Ala	
565 570 575	
gcc ggc gcc gca ctt ggt gac gtc tca gag cgg ctg cag acg gat cgg	1776
Ala Gly Ala Ala Leu Gly Asp Val Ser Glu Arg Leu Gln Thr Asp Arg	
580 585 590	
gac agg cga gct gcc ctg agt cca ggg ctc ctg cct ggt gtt gtc ccc	1824
Asp Arg Arg Ala Ala Leu Ser Pro Gly Leu Leu Pro Gly Val Val Pro	
595 600 605	
caa ggc ccc act gaa ctg ctc cag ccg ctc agc cct ggc ccc ggg gct	1872
Gln Gly Pro Thr Glu Leu Leu Gln Pro Leu Ser Pro Gly Pro Gly Ala	
610 615 620	
gca ggc acg agc agt gac gcc ctg ctc gcc ctc ctg gac ccg ctc agc	1920
Ala Gly Thr Ser Ser Asp Ala Leu Leu Ala Leu Leu Asp Pro Leu Ser	
625 630 635 640	
aca gcc tgg tca ggc agc acc ctc ccg tca cgc ccc gcc acc ccg aat	1968
Thr Ala Trp Ser Gly Ser Thr Leu Pro Ser Arg Pro Ala Thr Pro Asn	
645 650 655	
gta gcc acc cca ttc acc ccc caa ttc agc ttc ccc cct gca ggg aca	2016
Val Ala Thr Pro Phe Thr Pro Gln Phe Ser Phe Pro Pro Ala Gly Thr	
660 665 670	
ccc acc cca ttc cca cag cca cca ctc aac ccc ttt gtc cca tcc atg	2064
Pro Thr Pro Phe Pro Gln Pro Pro Leu Asn Pro Phe Val Pro Ser Met	
675 680 685	
cca gca gcc cca ccc acc ctg ccc ctg gtc tcc aca cca gcc ggg cct	2112
Pro Ala Ala Pro Pro Thr Leu Pro Leu Val Ser Thr Pro Ala Gly Pro	
690 695 700	
ttc ggg gcc cct cca gct tcc ctg ggg ccg gct ttt gcg tcc ggc ctc	2160
Phe Gly Ala Pro Pro Ala Ser Leu Gly Pro Ala Phe Ala Ser Gly Leu	
705 710 715 720	



ctg ctg tcc agt gct ggc ttc tgt gcc cct cac agg tct cag ccc aac	2208
Leu Leu Ser Ser Ala Gly Phe Cys Ala Pro His Arg Ser Gln Pro Asn	
725 730 735	
ctc tcc gcc ctc tcc atg ccc aac ctc ttt ggc cag atg ccc atg ggc	2256
Leu Ser Ala Leu Ser Met Pro Asn Leu Phe Gly Gln Met Pro Met Gly	
740 745 750	
acc cac acg agc ccc cta cag ccg ctg ggt ccc cca gca gtt gcc ccg	2304
Thr His Thr Ser Pro Leu Gln Pro Leu Gly Pro Pro Ala Val Ala Pro	
755 760 765	
tcg agg atc cga acg ttg ccc ctg gcc cgc tca agt gcc agg gct gct	2352
Ser Arg Ile Arg Thr Leu Pro Leu Ala Arg Ser Ser Ala Arg Ala Ala	
770 775 780	
gag acc aag cag ggg ctg gcc ctg agg cct gga gac ccc ccg ctt ctg	2400
Glu Thr Lys Gln Gly Leu Ala Leu Arg Pro Gly Asp Pro Pro Leu Leu	
785 790 795 800	
cct ccc agg ccc cct caa ggc ctg gag cca aca ctg cag ccc tct gct	2448
Pro Pro Arg Pro Pro Gln Gly Leu Glu Pro Thr Leu Gln Pro Ser Ala	
805 810 815	
cct caa cag gcc aga gac ccc ttt gag gat ttg tta cag aaa acc aag	2496
Pro Gln Gln Ala Arg Asp Pro Phe Glu Asp Leu Leu Gln Lys Thr Lys	
820 825 830	
caa gac gtg agc ccg agt ccg gcc ctg gcc ccg gcc cca gac tcg gtg	2544
Gln Asp Val Ser Pro Ser Pro Ala Leu Ala Pro Ala Pro Asp Ser Val	
835 840 845	
gag cag ctc agg aag cag tgg gag acc ttc gag tga	2580
Glu Gln Leu Arg Lys Gln Trp Glu Thr Phe Glu	
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<211>859

<212>PRT

<213> Homo sapiens

<400>154

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Thr Val Arg Lys Gly Ser Gly Ala Ile Leu Asn Thr Val Lys Thr Lys
35 40 45
Ala Asn Pro Ala Met Lys Thr Val Tyr Lys Phe Asp Ile Ala Glu Asn
50 55 60
Gly Cys Ala Pro Thr Pro Glu Glu Gln Leu Pro Lys Thr Ala Pro Ser
65 70 75 80

Pro Leu Val Glu Ala Lys Asp Pro Lys Leu Arg Glu Asp Arg Arg Pro  
 85 90 95  
 Ile Thr Val His Phe Gly Gln Asp Gln Ser Glu Met Ser Phe Ser Ser  
 100 105 110  
 Ala Leu Thr His Gly Lys Glu Ser Ala Arg Thr Gln Pro Glu Arg Val  
 115 120 125  
 Val Asp Arg Thr Gly Glu Pro Leu Asn Pro Glu Arg Ala Leu Ser Gly  
 130 135 140  
 Asp His Leu Trp Pro Val Thr His Leu Leu Trp Ala Thr Leu Gly Lys  
 145 150 155 160  
 Ser Leu Leu Ala Leu Ile Cys Glu Met Gly Ser Ser Pro Arg Ser Leu  
 165 170 175  
 Gln Arg Ser Leu Ala Leu Leu Gly Thr Pro Gln Leu Ile Trp Glu Thr  
 180 185 190  
 Ala Thr Thr Met Ala Asp Gly Pro Thr Thr Pro Cys Leu Gly Ser Arg  
 195 200 205  
 Gly Leu Pro Ser Ser Val Ser Thr Val Pro Leu Ala Leu Arg Glu Val  
 210 215 220  
 Pro Ser Asp Ala Pro His Pro Cys Ser Arg Ala Leu Val Thr Gly Leu  
 225 230 235 240  
 Thr Asp Glu Asp Thr Glu Ala Gln Gly Ser His Leu Leu Ala Lys Val  
 245 250 255  
 Thr Gln Gln Thr Met Ser Val Trp Leu Ser Glu Asn Gly Lys Glu Ala  
 260 265 270  
 Trp Ala Phe Ser His Glu Gly Ala Thr Ala Val Ala Ser Gly Met Thr  
 275 280 285  
 Tyr Pro Gln Ser Arg Met Cys Thr Arg Ala Ala Arg Ser His Ser His  
 290 295 300  
 Tyr Phe Leu Ala Pro Thr Thr Ala Pro Thr Val Pro Arg Thr Gln Ser  
 305 310 315 320  
 Pro Asp Leu Gly Ser Arg Met Gln Arg Leu Ser Ser Gly Leu Val Lys  
 325 330 335  
 Pro Leu Arg His Tyr Ala Val Phe Leu Ser Glu Asp Ser Ser Asp Asp  
 340 345 350  
 Glu Cys Gln Arg Glu Glu Gly Pro Ser Ser Gly Phe Thr Glu Ser Phe  
 355 360 365  
 Phe Phe Ser Ala Pro Phe Glu Trp Pro Gln Pro Tyr Arg Thr Leu Arg  
 370 375 380

Glu Ser Asp Ser Ala Glu Gly Asp Glu Ala Glu Ser Pro Glu Gln Gln  
 385 390 395 400  
 Val Arg Lys Ser Thr Gly Pro Val Pro Ala Pro Pro Asp Arg Ala Ala  
 405 410 415  
 Ser Ile Asp Leu Leu Glu Asp Val Phe Ser Asn Leu Asp Met Glu Ala  
 420 425 430  
 Ala Leu Gln Pro Leu Gly Gln Ala Lys Ser Leu Glu Asp Leu Arg Ala  
 435 440 445  
 Pro Lys Asp Leu Arg Glu Gln Pro Gly Thr Phe Asp Tyr Gln Arg Leu  
 450 455 460  
 Asp Leu Gly Gly Ser Glu Arg Ser Arg Gly Val Thr Val Ala Leu Lys  
 465 470 475 480  
 Leu Thr His Pro Tyr Asn Lys Leu Trp Ser Leu Gly Gln Asp Asp Met  
 485 490 495  
 Ala Ile Pro Ser Lys Pro Pro Ala Ala Ser Pro Glu Lys Pro Ser Ala  
 500 505 510  
 Leu Leu Gly Asn Ser Leu Ala Leu Pro Arg Arg Pro Gln Asn Arg Asp  
 515 520 525  
 Ser Ile Leu Asn Pro Ser Asp Lys Glu Glu Val Pro Thr Pro Thr Leu  
 530 535 540  
 Gly Ser Ile Thr Ile Pro Arg Pro Gln Gly Arg Lys Thr Pro Glu Leu  
 545 550 555 560  
 Gly Ile Val Pro Pro Pro Pro Ile Pro Arg Pro Ala Lys Leu Gln Ala  
 565 570 575  
 Ala Gly Ala Ala Leu Gly Asp Val Ser Glu Arg Leu Gln Thr Asp Arg  
 580 585 590  
 Asp Arg Arg Ala Ala Leu Ser Pro Gly Leu Leu Pro Gly Val Val Pro  
 595 600 605  
 Gln Gly Pro Thr Glu Leu Leu Gln Pro Leu Ser Pro Gly Pro Gly Ala  
 610 615 620  
 Ala Gly Thr Ser Ser Asp Ala Leu Leu Ala Leu Leu Asp Pro Leu Ser  
 625 630 635 640  
 Thr Ala Trp Ser Gly Ser Thr Leu Pro Ser Arg Pro Ala Thr Pro Asn  
 645 650 655  
 Val Ala Thr Pro Phe Thr Pro Gln Phe Ser Phe Pro Pro Ala Gly Thr  
 660 665 670  
 Pro Thr Pro Phe Pro Gln Pro Pro Leu Asn Pro Phe Val Pro Ser Met  
 675 680 685

Pro Ala Ala Pro Pro Thr Leu Pro Leu Val Ser Thr Pro Ala Gly Pro  
 690 695 700  
 Phe Gly Ala Pro Pro Ala Ser Leu Gly Pro Ala Phe Ala Ser Gly Leu  
 705 710 715 720  
 Leu Leu Ser Ser Ala Gly Phe Cys Ala Pro His Arg Ser Gln Pro Asn  
 725 730 735  
 Leu Ser Ala Leu Ser Met Pro Asn Leu Phe Gly Gln Met Pro Met Gly  
 740 745 750  
 Thr His Thr Ser Pro Leu Gln Pro Leu Gly Pro Pro Ala Val Ala Pro  
 755 760 765  
 Ser Arg Ile Arg Thr Leu Pro Leu Ala Arg Ser Ser Ala Arg Ala Ala  
 770 775 780  
 Glu Thr Lys Gln Gly Leu Ala Leu Arg Pro Gly Asp Pro Pro Leu Leu  
 785 790 795 800  
 Pro Pro Arg Pro Pro Gln Gly Leu Glu Pro Thr Leu Gln Pro Ser Ala  
 805 810 815  
 Pro Gln Gln Ala Arg Asp Pro Phe Glu Asp Leu Leu Gln Lys Thr Lys  
 820 825 830  
 Gln Asp Val Ser Pro Ser Pro Ala Leu Ala Pro Ala Pro Asp Ser Val  
 835 840 845  
 Glu Gln Leu Arg Lys Gln Trp Glu Thr Phe Glu  
 850 855

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<211>1394

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (39) .. (1248)

<400>155

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Met Gly Leu Phe Pro	
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act aac ccc aaa gag aag acc cag gag gaa ccc cct ggc cag agc agg	101
Thr Asn Pro Lys Glu Lys Thr Gln Glu Glu Pro Pro Gly Gln Ser Arg	
10 15 20	
gcc cct gtg ttg acc gtg gtg tcc aag ttc aag gcc tca ctg gag cag	149
Ala Pro Val Leu Thr Val Val Ser Lys Phe Lys Ala Ser Leu Glu Gln	
25 30 35	
ctt ctg cag gtc cta cac agc acc acg ccc cac tac att cgc tgc atc	197
Leu Leu Gln Val Leu His Ser Thr Thr Pro His Tyr Ile Arg Cys Ile	
40 45 50	

aag ccc aac agc cag ggc cag gcg cag acc ttt ctc caa gag gag gtc	245
Lys Pro Asn Ser Gln Gly Gln Ala Gln Thr Phe Leu Gln Glu Glu Val	
55 60 65	
ctg agc cag ctg gag gcc tgt ggc ctc gtg gag acc atc cat atc agt	293
Leu Ser Gln Leu Glu Ala Cys Gly Leu Val Glu Thr Ile His Ile Ser	
70 75 80 85	
gct gct ggc ttc ccc atc cgg gtc tct cac cga aac ttt gta gaa cga	341
Ala Ala Gly Phe Pro Ile Arg Val Ser His Arg Asn Phe Val Glu Arg	
90 95 100	
tac aag tta cta aga agg ctt cat cct tgc aca tcc tct ggc ccc gac	389
Tyr Lys Leu Leu Arg Arg Leu His Pro Cys Thr Ser Ser Gly Pro Asp	
105 110 115	
agc cca tat cct gcc aaa ggg ctc cct gaa tgg tgt cca cac agc gag	437
Ser Pro Tyr Pro Ala Lys Gly Leu Pro Glu Trp Cys Pro His Ser Glu	
120 125 130	
gaa gcc acg ctt gaa cct ctc atc cag gac att ctc cac act ctg ccg	485
Glu Ala Thr Leu Glu Pro Leu Ile Gln Asp Ile Leu His Thr Leu Pro	
135 140 145	
gtc cta act cag gca gca gcc ata act ggt gac tcg gct gag gcc atg	533
Val Leu Thr Gln Ala Ala Ala Ile Thr Gly Asp Ser Ala Glu Ala Met	
150 155 160 165	
cca gcc ccc atg cac tgt ggc agg acc aag gtg ttc atg act gac tct	581
Pro Ala Pro Met His Cys Gly Arg Thr Lys Val Phe Met Thr Asp Ser	
170 175 180	
atg ctg gag ctt ctg gaa tgt ggg cgt gcc cgg gtg ctg gag cag tgt	629
Met Leu Glu Leu Leu Glu Cys Gly Arg Ala Arg Val Leu Glu Gln Cys	
185 190 195	
gcc cgc tgc atc cag ggt ggc tgg agg cga cac cgg cac cga gag cag	677
Ala Arg Cys Ile Gln Gly Gly Trp Arg Arg His Arg His Arg Glu Gln	
200 205 210	
gag cgg cag tgg cgg gcc gtc atg ctc atc cag gca gcc att cgt tcc	725
Glu Arg Gln Trp Arg Ala Val Met Leu Ile Gln Ala Ala Ile Arg Ser	
215 220 225	
tgg tta act cgg aaa cac atc cag agg ctg cat gca gct gcc aca gtc	773
Trp Leu Thr Arg Lys His Ile Gln Arg Leu His Ala Ala Ala Thr Val	
230 235 240 245	
atc aag cgt gca tgg cag aag tgg aga atc aga atg gcc tgc ctt gct	821
Ile Lys Arg Ala Trp Gln Lys Trp Arg Ile Arg Met Ala Cys Leu Ala	
250 255 260	
gct aaa gag ctg gat ggt gtg gaa gaa aaa cac ttc tct caa gct ccc	869
Ala Lys Glu Leu Asp Gly Val Glu Glu Lys His Phe Ser Gln Ala Pro	
265 270 275	

tgt tcc ctg agc acc tcg ccg ctg cag acc agg ctc ctg gag gca ata	917
Cys Ser Leu Ser Thr Ser Pro Leu Gln Thr Arg Leu Leu Glu Ala Ile	
280 285 290	
atc cgc ttc tgg ccc ctg gga ctg gtc ctg gcc aat acg gct atg ggt	965
Ile Arg Phe Trp Pro Leu Gly Leu Val Leu Ala Asn Thr Ala Met Gly	
295 300 305	
gta ggc agc ttt cag agg aaa tta gtg gtc tgg gct tgc ctc cag ctc	1013
Val Gly Ser Phe Gln Arg Lys Leu Val Val Trp Ala Cys Leu Gln Leu	
310 315 320 325	
ccc agg ggc agc ccc agt agc tac act gtc cag aca gca caa gac cag	1061
Pro Arg Gly Ser Pro Ser Ser Tyr Thr Val Gln Thr Ala Gln Asp Gln	
330 335 340	
gct ggt gtc acg tcc atc cga gcg ctg cct cag gga tcg ata aag ttt	1109
Ala Gly Val Thr Ser Ile Arg Ala Leu Pro Gln Gly Ser Ile Lys Phe	
345 350 355	
cac tgc aga aag tct cca ctg cgg tat gct gac atc tgc cct gaa cct	1157
His Cys Arg Lys Ser Pro Leu Arg Tyr Ala Asp Ile Cys Pro Glu Pro	
360 365 370	
tca ccc tac agc att gca ggc ttt aat cag att ctg ctg gaa aga cac	1205
Ser Pro Tyr Ser Ile Ala Gly Phe Asn Gln Ile Leu Leu Glu Arg His	
375 380 385	
agg ctg atc cac gtg acc tct tct gcc ttc act ggg ctg ggg	1247
Arg Leu Ile His Val Thr Ser Ser Ala Phe Thr Gly Leu Gly	
390 395 400	
tgatccttgg tgcttttgtt tccacaaggc cttttctctgc cccctgcctt	1297
gccaaagaca tttaatcagc acacagctgc cagactattc ccacagtgc	1347
ccaaatgcac atgaacaaca gtgacggctc cagccttcga cccagag	1394

<210>156

<211>403

<212>PRT

<213> Homo sapiens

<400>156

Met Gly Leu Phe Pro Thr Asn Pro Lys Glu Lys Thr Gln Glu Glu Pro
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Pro Gly Gln Ser Arg Ala Pro Val Leu Thr Val Val Ser Lys Phe Lys
20 25 30

Ala Ser Leu Glu Gln Leu Leu Gln Val Leu His Ser Thr Thr Pro His



340	345	350	
Gly Ser Ile Lys Phe His Cys Arg Lys Ser Pro Leu Arg Tyr Ala Asp			
355	360	365	
Ile Cys Pro Glu Pro Ser Pro Tyr Ser Ile Ala Gly Phe Asn Gln Ile			
370	375	380	
Leu Leu Glu Arg His Arg Leu Ile His Val Thr Ser Ser Ala Phe Thr			
385	390	395	400
Gly Leu Gly			
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gttacgggga cgacctgcgg gagcacgcgg gcagtggccg gacgctgaag			100
cccaggagag cg atg gag acg tat gcg gag gtt ggg aag gag ggc aag			148
Met Glu Thr Tyr Ala Glu Val Gly Lys Glu Gly Lys	5	10	
cct tcc tgt gca tcg gtg gat ctg cag gga gac agc tcc tta cag gtg			196
Pro Ser Cys Ala Ser Val Asp Leu Gln Gly Asp Ser Ser Leu Gln Val	15	20	25
gag att tct gac gca gtg agt gag cgg gac aag gtg aaa ttc act gtt			244
Glu Ile Ser Asp Ala Val Ser Glu Arg Asp Lys Val Lys Phe Thr Val	30	35	40
caa aca aag agc tgc ctc cct cac ttc gcc cag acc gag ttc tca gtc			292
Gln Thr Lys Ser Cys Leu Pro His Phe Ala Gln Thr Glu Phe Ser Val	45	50	55
60			
gtg cgg cag cac gag gag ttc atc tgg ctg cat gat gcc tac gtg gag			340
Val Arg Gln His Glu Glu Phe Ile Trp Leu His Asp Ala Tyr Val Glu	65	70	75
aat gag gag tac gcc ggc ctc atc atc ccc cca gcc cct ccg agg cca			388
Asn Glu Glu Tyr Ala Gly Leu Ile Ile Pro Pro Ala Pro Pro Arg Pro	80	85	90
gac ttt gag gct tcg agg gaa aag cta cag aaa ttg ggc gag ggg gac			436
Asp Phe Glu Ala Ser Arg Glu Lys Leu Gln Lys Leu Gly Glu Gly Asp			



95	100	105	
agc tct gtc act cgg gaa gag ttt gcc aag atg aag cag gag ctg gaa			484
Ser Ser Val Thr Arg Glu Glu Phe Ala Lys Met Lys Gln Glu Leu Glu			
110	115	120	
gcg gag tac ctg gcc atc ttt aag aag aca gtt gcg atg cac gaa gtc			532
Ala Glu Tyr Leu Ala Ile Phe Lys Lys Thr Val Ala Met His Glu Val			
125	130	135	140
ttt ctg cag cgc ctg gcg gcc cac ccc acc ctg cgt cga gac cac aac			580
Phe Leu Gln Arg Leu Ala Ala His Pro Thr Leu Arg Arg Asp His Asn			
	145	150	155
ttc ttt gtg ttt ttg gaa tat gga cag gat ctg agt gtc cgg ggg aag			628
Phe Phe Val Phe Leu Glu Tyr Gly Gln Asp Leu Ser Val Arg Gly Lys			
	160	165	170
aac agg aag gag ctc ctc gga ggg ttt ctg agg aat att gtg aag tcc			676
Asn Arg Lys Glu Leu Leu Gly Gly Phe Leu Arg Asn Ile Val Lys Ser			
	175	180	185
gcg gat gaa gcc ctc atc acg ggc atg tca ggg ctc aag gag gtg gat			724
Ala Asp Glu Ala Leu Ile Thr Gly Met Ser Gly Leu Lys Glu Val Asp			
	190	195	200
gac ttc ttt gag cat gag agg acc ttc ctg ttg gag tat cac acc cgt			772
Asp Phe Phe Glu His Glu Arg Thr Phe Leu Leu Glu Tyr His Thr Arg			
205	210	215	220
atc cga gat gcc tgc ctg cgg gcc gac cgc gtc atg cgc gcc cac aag			820
Ile Arg Asp Ala Cys Leu Arg Ala Asp Arg Val Met Arg Ala His Lys			
	225	230	235
tgc ctg gca gac gat tat atc cct atc tca gct gcg ctg agc agt ctg			868
Cys Leu Ala Asp Asp Tyr Ile Pro Ile Ser Ala Ala Leu Ser Ser Leu			
	240	245	250
gga aca cag gaa gtc aac cag cta agg acg agc ttc ctc aaa ttg gca			916
Gly Thr Gln Glu Val Asn Gln Leu Arg Thr Ser Phe Leu Lys Leu Ala			
	255	260	265
gag ctc ttt gac cgg ctg agg aag ctg gag ggc cgg gtg gct tcc gat			964
Glu Leu Phe Asp Arg Leu Arg Lys Leu Glu Gly Arg Val Ala Ser Asp			
	270	275	280
gag gac ctg aag ctg tca gac atg ctg agg tac tac atg cgt gac tca			1012
Glu Asp Leu Lys Leu Ser Asp Met Leu Arg Tyr Tyr Met Arg Asp Ser			
285	290	295	300
cag gca gcc aag gac ctg ctg tac cgg cgg ctg cgg gca ctg gcc gac			1060
Gln Ala Ala Lys Asp Leu Leu Tyr Arg Arg Leu Arg Ala Leu Ala Asp			
	305	310	315
tac gag aat gcc aac aag gcg ctg gac aag gcg cgc acc agg aac cgg			1108
Tyr Glu Asn Ala Asn Lys Ala Leu Asp Lys Ala Arg Thr Arg Asn Arg			
	320	325	330

gag gtg cgg ccc gcc gag agc cac cag cag ctg tgc tgc caa cgc ttc 1156  
 Glu Val Arg Pro Ala Glu Ser His Gln Gln Leu Cys Cys Gln Arg Phe  
 335 340 345  
 gag cgc ctc tcc gac tcc gcc aag caa gag ctc atg gac ttc aag tcc 1204  
 Glu Arg Leu Ser Asp Ser Ala Lys Gln Glu Leu Met Asp Phe Lys Ser  
 350 355 360  
 cgc cgg gtc tcc tct ttt cga aag aat ctc att gag ctg gca gag ctg 1252  
 Arg Arg Val Ser Ser Phe Arg Lys Asn Leu Ile Glu Leu Ala Glu Leu  
 365 370 375 380  
 gag ctc aaa cac gcc aag gcc agc acc ctg att ctc cgg aac acc ctt 1300  
 Glu Leu Lys His Ala Lys Ala Ser Thr Leu Ile Leu Arg Asn Thr Leu  
 385 390 395  
 gtt gcc cta aag ggg gag cct tagagtagcc agagctcagc cagaccctaa 1351  
 Val Ala Leu Lys Gly Glu Pro  
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 tctgggatct ccagtgacca gggatatccc 1380

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 <211>403  
 <212>PRT  
 <213> Homo sapiens

<400>158  
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 20 25 30  
 Ala Val Ser Glu Arg Asp Lys Val Lys Phe Thr Val Gln Thr Lys Ser  
 35 40 45  
 Cys Leu Pro His Phe Ala Gln Thr Glu Phe Ser Val Val Arg Gln His  
 50 55 60  
 Glu Glu Phe Ile Trp Leu His Asp Ala Tyr Val Glu Asn Glu Glu Tyr  
 65 70 75 80  
 Ala Gly Leu Ile Ile Pro Pro Ala Pro Pro Arg Pro Asp Phe Glu Ala  
 85 90 95  
 Ser Arg Glu Lys Leu Gln Lys Leu Gly Glu Gly Asp Ser Ser Val Thr  
 100 105 110  
 Arg Glu Glu Phe Ala Lys Met Lys Gln Glu Leu Glu Ala Glu Tyr Leu  
 115 120 125  
 Ala Ile Phe Lys Lys Thr Val Ala Met His Glu Val Phe Leu Gln Arg  
 130 135 140

Leu Ala Ala His Pro Thr Leu Arg Arg Asp His Asn Phe Phe Val Phe  
 145 150 155 160  
 Leu Glu Tyr Gly Gln Asp Leu Ser Val Arg Gly Lys Asn Arg Lys Glu  
 165 170 175  
 Leu Leu Gly Gly Phe Leu Arg Asn Ile Val Lys Ser Ala Asp Glu Ala  
 180 185 190  
 Leu Ile Thr Gly Met Ser Gly Leu Lys Glu Val Asp Asp Phe Phe Glu  
 195 200 205  
 His Glu Arg Thr Phe Leu Leu Glu Tyr His Thr Arg Ile Arg Asp Ala  
 210 215 220  
 Cys Leu Arg Ala Asp Arg Val Met Arg Ala His Lys Cys Leu Ala Asp  
 225 230 235 240  
 Asp Tyr Ile Pro Ile Ser Ala Ala Leu Ser Ser Leu Gly Thr Gln Glu  
 245 250 255  
 Val Asn Gln Leu Arg Thr Ser Phe Leu Lys Leu Ala Glu Leu Phe Asp  
 260 265 270  
 Arg Leu Arg Lys Leu Glu Gly Arg Val Ala Ser Asp Glu Asp Leu Lys  
 275 280 285  
 Leu Ser Asp Met Leu Arg Tyr Tyr Met Arg Asp Ser Gln Ala Ala Lys  
 290 295 300  
 Asp Leu Leu Tyr Arg Arg Leu Arg Ala Leu Ala Asp Tyr Glu Asn Ala  
 305 310 315 320  
 Asn Lys Ala Leu Asp Lys Ala Arg Thr Arg Asn Arg Glu Val Arg Pro  
 325 330 335  
 Ala Glu Ser His Gln Gln Leu Cys Cys Gln Arg Phe Glu Arg Leu Ser  
 340 345 350  
 Asp Ser Ala Lys Gln Glu Leu Met Asp Phe Lys Ser Arg Arg Val Ser  
 355 360 365  
 Ser Phe Arg Lys Asn Leu Ile Glu Leu Ala Glu Leu Glu Leu Lys His  
 370 375 380  
 Ala Lys Ala Ser Thr Leu Ile Leu Arg Asn Thr Leu Val Ala Leu Lys  
 385 390 395 400  
 Gly Glu Pro

<210>159  
 <211>3056  
 <212>DNA  
 <213> Homo sapiens

<220>  
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 <222> (75) .. (2988)  
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ctagcggctc tccccgcgtc caag atg gcg gca gaa gca gct ggt ggg aaa 101  
 Met Ala Ala Glu Ala Ala Gly Gly Lys  
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tac aga agc aca gtc agc aaa agc aaa gac ccc tcg ggg ctg ctc atc 149  
 Tyr Arg Ser Thr Val Ser Lys Ser Lys Asp Pro Ser Gly Leu Leu Ile  
 10 15 20 25

tct gtg atc agg act ctg tct act agt gac gat gtc gaa gac agg gaa 197  
 Ser Val Ile Arg Thr Leu Ser Thr Ser Asp Asp Val Glu Asp Arg Glu  
 30 35 40

aat gaa aag ggt cgc ctt gaa gaa gcc tac gag aaa tgt gac cgt gac 245  
 Asn Glu Lys Gly Arg Leu Glu Glu Ala Tyr Glu Lys Cys Asp Arg Asp  
 45 50 55

ctg gat gaa ttg att gta cag cac tac aca gaa ttg acg aca gcc att 293  
 Leu Asp Glu Leu Ile Val Gln His Tyr Thr Glu Leu Thr Thr Ala Ile  
 60 65 70

cgc aca tac cag agc atc aca gag cgc atc act aac tcc cga aat aaa 341  
 Arg Thr Tyr Gln Ser Ile Thr Glu Arg Ile Thr Asn Ser Arg Asn Lys  
 75 80 85

ata aag cag gta aaa gag aac ctg ctt tca tgc aag atg ctg ctg cac 389  
 Ile Lys Gln Val Lys Glu Asn Leu Leu Ser Cys Lys Met Leu Leu His  
 90 95 100 105

tgc aaa cgg gat gag ctt cgg aaa ctg tgg att gaa gga att gag cat 437  
 Cys Lys Arg Asp Glu Leu Arg Lys Leu Trp Ile Glu Gly Ile Glu His  
 110 115 120

aag cat gtc ctg aac ttg ttg gat gaa att gag aat atc aag caa gtg 485  
 Lys His Val Leu Asn Leu Leu Asp Glu Ile Glu Asn Ile Lys Gln Val  
 125 130 135

cct caa aag ctg gaa cag tgc atg gcc agc aag cac tat ctc agt gcc 533  
 Pro Gln Lys Leu Glu Gln Cys Met Ala Ser Lys His Tyr Leu Ser Ala  
 140 145 150

act gac atg ttg gtg tca gca gtt gag tct ttg gag ggc ccc ctg ctc 581  
 Thr Asp Met Leu Val Ser Ala Val Glu Ser Leu Glu Gly Pro Leu Leu  
 155 160 165

cag gtg gaa gga ctg agt gac ctt cga cta gag ctt cac agc aag aag 629  
 Gln Val Glu Gly Leu Ser Asp Leu Arg Leu Glu Leu His Ser Lys Lys  
 170 175 180 185

atg aac ctt cac ttg gtt ctc ata gat gaa cta cac cgg cac ctg tac 677

Met	Asn	Leu	His	Leu	Val	Leu	Ile	Asp	Glu	Leu	His	Arg	His	Leu	Tyr	
				190					195					200		
atc	aaa	tcg	act	agc	cga	gtt	gtg	cag	cgt	aac	aag	gaa	aaa	ggg	aaa	725
Ile	Lys	Ser	Thr	Ser	Arg	Val	Val	Gln	Arg	Asn	Lys	Glu	Lys	Gly	Lys	
			205					210					215			
atc	agc	tcc	ctc	gtg	aaa	gat	gct	tct	gtt	cct	ctg	att	gat	gtt	aca	773
Ile	Ser	Ser	Leu	Val	Lys	Asp	Ala	Ser	Val	Pro	Leu	Ile	Asp	Val	Thr	
			220				225					230				
aac	ctc	cct	act	cct	cga	aaa	ttc	ctt	gat	acc	tct	cac	tat	tct	act	821
Asn	Leu	Pro	Thr	Pro	Arg	Lys	Phe	Leu	Asp	Thr	Ser	His	Tyr	Ser	Thr	
		235				240					245					
gct	gga	agc	tca	agt	gtg	agg	gag	ata	aat	ctg	cag	gac	atc	aag	gaa	869
Ala	Gly	Ser	Ser	Ser	Val	Arg	Glu	Ile	Asn	Leu	Gln	Asp	Ile	Lys	Glu	
250					255					260				265		
gat	tta	gaa	ttg	gat	cca	gag	gaa	aac	agc	acc	ctg	ttt	atg	ggg	atc	917
Asp	Leu	Glu	Leu	Asp	Pro	Glu	Glu	Asn	Ser	Thr	Leu	Phe	Met	Gly	Ile	
				270				275						280		
ctc	att	aag	ggc	ttg	gcg	aaa	ctg	aag	aag	atc	cca	gaa	aca	gtt	aag	965
Leu	Ile	Lys	Gly	Leu	Ala	Lys	Leu	Lys	Lys	Ile	Pro	Glu	Thr	Val	Lys	
			285				290						295			
gca	atc	ata	gag	cgc	ttg	gag	cag	gag	ttg	aag	caa	att	gtg	aag	agg	1013
Ala	Ile	Ile	Glu	Arg	Leu	Glu	Gln	Glu	Leu	Lys	Gln	Ile	Val	Lys	Arg	
		300				305						310				
tct	aca	acc	cag	gtg	gca	gac	agt	ggc	tat	cag	cgg	ggg	gag	aac	gtt	1061
Ser	Thr	Thr	Gln	Val	Ala	Asp	Ser	Gly	Tyr	Gln	Arg	Gly	Glu	Asn	Val	
		315				320					325					
act	gtg	gag	aac	caa	cca	agg	ttg	ctt	cta	gaa	ctg	ctg	gag	tta	ctg	1109
Thr	Val	Glu	Asn	Gln	Pro	Arg	Leu	Leu	Leu	Glu	Leu	Leu	Glu	Leu	Leu	
330					335					340				345		
ttt	gac	aag	ttt	aat	gct	gta	gcc	gct	gca	cac	tct	gtg	gtc	ctg	gga	1157
Phe	Asp	Lys	Phe	Asn	Ala	Val	Ala	Ala	Ala	His	Ser	Val	Val	Leu	Gly	
			350				355						360			
tac	ctg	cag	gac	act	gta	gtg	act	cca	ctg	act	cag	cag	gaa	gat	atc	1205
Tyr	Leu	Gln	Asp	Thr	Val	Val	Thr	Pro	Leu	Thr	Gln	Gln	Glu	Asp	Ile	
			365				370						375			
aaa	ctg	tat	gat	atg	gca	gat	gta	tgg	gtg	aag	atc	caa	gat	gtt	cta	1253
Lys	Leu	Tyr	Asp	Met	Ala	Asp	Val	Trp	Val	Lys	Ile	Gln	Asp	Val	Leu	
		380				385					390					
cag	atg	cta	tta	act	gag	tac	ttg	gat	atg	aaa	aat	act	cgt	acg	gcc	1301
Gln	Met	Leu	Leu	Thr	Glu	Tyr	Leu	Asp	Met	Lys	Asn	Thr	Arg	Thr	Ala	
		395			400					405						
tct	gaa	cca	tca	gct	caa	cta	agc	tat	gcc	agc	act	gga	cga	gag	ttt	1349
Ser	Glu	Pro	Ser	Ala	Gln	Leu	Ser	Tyr	Ala	Ser	Thr	Gly	Arg	Glu	Phe	

410	415	420	425	
gca gcc ttt ttt gcc aag aag aaa cct caa agg cca aaa aat tct ctt				1397
Ala Ala Phe Phe Ala Lys Lys Lys Pro Gln Arg Pro Lys Asn Ser Leu				
	430	435	440	
ttc aag ttc gaa tcg tcc tcc cat gcc atc agt atg agc gcc tat ctg				1445
Phe Lys Phe Glu Ser Ser Ser His Ala Ile Ser Met Ser Ala Tyr Leu				
	445	450	455	
cga gaa cag aga agg gag ctc tat agt cgg agt gga gaa ctg caa ggg				1493
Arg Glu Gln Arg Arg Glu Leu Tyr Ser Arg Ser Gly Glu Leu Gln Gly				
	460	465	470	
ggg cct gat gac aac tta att gaa ggt gga gga aca aaa ttt gtc tgc				1541
Gly Pro Asp Asp Asn Leu Ile Glu Gly Gly Gly Thr Lys Phe Val Cys				
	475	480	485	
aaa cct gga gcc aga aac att acc gtc ata ttc cac cca tta cta aga				1589
Lys Pro Gly Ala Arg Asn Ile Thr Val Ile Phe His Pro Leu Leu Arg				
	490	495	500	505
ttt att cag gag att gag cat gct ctg ggt ctt ggc cca gcc aaa cag				1637
Phe Ile Gln Glu Ile Glu His Ala Leu Gly Leu Gly Pro Ala Lys Gln				
	510	515	520	
tgt cct ctt cga gag ttt ctc acc gtg tac atc aaa aac atc ttt ctc				1685
Cys Pro Leu Arg Glu Phe Leu Thr Val Tyr Ile Lys Asn Ile Phe Leu				
	525	530	535	
aat caa gtc ttg gct gag atc aac aag gag att gaa gga gtc act aaa				1733
Asn Gln Val Leu Ala Glu Ile Asn Lys Glu Ile Glu Gly Val Thr Lys				
	540	545	550	
aca tct gac cct ttg aag att ctg gcc aac gca gac acc atg aag gtg				1781
Thr Ser Asp Pro Leu Lys Ile Leu Ala Asn Ala Asp Thr Met Lys Val				
	555	560	565	
ctg gga gtg cag cgg cct ctc cta cag agc aca atc att gtg gag aag				1829
Leu Gly Val Gln Arg Pro Leu Leu Gln Ser Thr Ile Ile Val Glu Lys				
	570	575	580	585
aca gtt caa gac ctc ctg aac ctg atg cat gac ttg agt gca tat tca				1877
Thr Val Gln Asp Leu Leu Asn Leu Met His Asp Leu Ser Ala Tyr Ser				
	590	595	600	
gat caa ttc ctc aac atg gtg tgc gtg aag ctc cag gag tac aag gac				1925
Asp Gln Phe Leu Asn Met Val Cys Val Lys Leu Gln Glu Tyr Lys Asp				
	605	610	615	
acc tgc act gca gct tac agg ggt att gtc cag tca gaa gaa aaa ctt				1973
Thr Cys Thr Ala Ala Tyr Arg Gly Ile Val Gln Ser Glu Glu Lys Leu				
	620	625	630	
gtc atc agt gca tcc tgg gca aaa gat gat gat atc agc aga ctc ttg				2021
Val Ile Ser Ala Ser Trp Ala Lys Asp Asp Asp Ile Ser Arg Leu Leu				
	635	640	645	

aaa tct cta cca aac tgg atg aat atg gct caa ccc aaa cag ctg agg	2069
Lys Ser Leu Pro Asn Trp Met Asn Met Ala Gln Pro Lys Gln Leu Arg	
650 655 660 665	
cca aaa aga gag gag gaa gaa gat ttc ata agg gca gct ttt ggc aag	2117
Pro Lys Arg Glu Glu Glu Glu Asp Phe Ile Arg Ala Ala Phe Gly Lys	
670 675 680	
gag tct gaa gtt ctt att ggg aac ctg ggt gat aaa tta atc cct cca	2165
Glu Ser Glu Val Leu Ile Gly Asn Leu Gly Asp Lys Leu Ile Pro Pro	
685 690 695	
caa gac atc ctt cgt gac gtc agt gac ctc aaa gcc ttg gcc aac atg	2213
Gln Asp Ile Leu Arg Asp Val Ser Asp Leu Lys Ala Leu Ala Asn Met	
700 705 710	
cat gaa agc ctg gaa tgg ttg gca agt cga aca aag tca gct ttc tcc	2261
His Glu Ser Leu Glu Trp Leu Ala Ser Arg Thr Lys Ser Ala Phe Ser	
715 720 725	
aat ctt tct aca tcc cag atg ctt tct cct gct caa gac agc cac acg	2309
Asn Leu Ser Thr Ser Gln Met Leu Ser Pro Ala Gln Asp Ser His Thr	
730 735 740 745	
aac acg gat ctc ccc cca gtg tca gag cag atc atg cag act ctc agt	2357
Asn Thr Asp Leu Pro Pro Val Ser Glu Gln Ile Met Gln Thr Leu Ser	
750 755 760	
gaa ctt gcc aaa tcg ttc cag gat atg gct gac cgc tgc ttg ctt gtc	2405
Glu Leu Ala Lys Ser Phe Gln Asp Met Ala Asp Arg Cys Leu Leu Val	
765 770 775	
tta cat ctg gaa .gtg agg gtt cac tgt ttc cac tat ctt atc cct ctt	2453
Leu His Leu Glu Val Arg Val His Cys Phe His Tyr Leu Ile Pro Leu	
780 785 790	
gca aag gag ggg aac tat gcc att gtg gct aat gtg gaa agt atg gat	2501
Ala Lys Glu Gly Asn Tyr Ala Ile Val Ala Asn Val Glu Ser Met Asp	
795 800 805	
tat gac ccc ctg gtg gtc aag ctc aac aaa gat atc agc gcc att gaa	2549
Tyr Asp Pro Leu Val Val Lys Leu Asn Lys Asp Ile Ser Ala Ile Glu	
810 815 820 825	
gag gcc atg agc gcc agc ctt cag cag cac aag ttc cag tat atc ttc	2597
Glu Ala Met Ser Ala Ser Leu Gln Gln His Lys Phe Gln Tyr Ile Phe	
830 835 840	
gaa ggc ctg ggc cac ctg atc tcc tgc atc ctc att aat ggt gcc cag	2645
Glu Gly Leu Gly His Leu Ile Ser Cys Ile Leu Ile Asn Gly Ala Gln	
845 850 855	
tac ttc agg cgc atc agt gag tct ggc atc aag aaa atg tgt agg aac	2693
Tyr Phe Arg Arg Ile Ser Glu Ser Gly Ile Lys Lys Met Cys Arg Asn	
860 865 870	

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 Ile Phe Val Leu Gln Gln Asn Leu Thr Asn Ile Thr Met Ser Arg Glu  
 875 880 885  
 gca gac ctg gac ttt gca agg cag tac tac gag atg ctt tac aac aca 2789  
 Ala Asp Leu Asp Phe Ala Arg Gln Tyr Tyr Glu Met Leu Tyr Asn Thr  
 890 895 900 905  
 gct gac gag ctc ctg aac ctg gtg gtg gac cag ggt gtg aag tac acg 2837  
 Ala Asp Glu Leu Leu Asn Leu Val Val Asp Gln Gly Val Lys Tyr Thr  
 910 915 920  
 gag ctg gag tac atc cac gct ctg acc ctg ctg cac cgc agc cag act 2885  
 Glu Leu Glu Tyr Ile His Ala Leu Thr Leu Leu His Arg Ser Gln Thr  
 925 930 935  
 ggg gtg ggg gaa ctg acc acc cag aac acg agc tgc aga gga ggc tca 2933  
 Gly Val Gly Glu Leu Thr Thr Gln Asn Thr Ser Cys Arg Gly Gly Ser  
 940 945 950  
 aag aga tca tct gcg agc agg ctg cca tca agc aag cca cca agg aca 2981  
 Lys Arg Ser Ser Ala Ser Arg Leu Pro Ser Ser Lys Pro Pro Arg Thr  
 955 960 965  
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 gtcacactca cttttttcc 3056

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 35 40 45  
 Glu Ala Tyr Glu Lys Cys Asp Arg Asp Leu Asp Glu Leu Ile Val Gln  
 50 55 60  
 His Tyr Thr Glu Leu Thr Thr Ala Ile Arg Thr Tyr Gln Ser Ile Thr  
 65 70 75 80  
 Glu Arg Ile Thr Asn Ser Arg Asn Lys Ile Lys Gln Val Lys Glu Asn  
 85 90 95  
 Leu Leu Ser Cys Lys Met Leu Leu His Cys Lys Arg Asp Glu Leu Arg



100					105					110					
Lys	Leu	Trp	Ile	Glu	Gly	Ile	Glu	His	Lys	His	Val	Leu	Asn	Leu	Leu
	115						120					125			
Asp	Glu	Ile	Glu	Asn	Ile	Lys	Gln	Val	Pro	Gln	Lys	Leu	Glu	Gln	Cys
	130					135					140				
Met	Ala	Ser	Lys	His	Tyr	Leu	Ser	Ala	Thr	Asp	Met	Leu	Val	Ser	Ala
145					150					155					160
Val	Glu	Ser	Leu	Glu	Gly	Pro	Leu	Leu	Gln	Val	Glu	Gly	Leu	Ser	Asp
				165					170					175	
Leu	Arg	Leu	Glu	Leu	His	Ser	Lys	Lys	Met	Asn	Leu	His	Leu	Val	Leu
			180					185					190		
Ile	Asp	Glu	Leu	His	Arg	His	Leu	Tyr	Ile	Lys	Ser	Thr	Ser	Arg	Val
	195						200					205			
Val	Gln	Arg	Asn	Lys	Glu	Lys	Gly	Lys	Ile	Ser	Ser	Leu	Val	Lys	Asp
	210					215					220				
Ala	Ser	Val	Pro	Leu	Ile	Asp	Val	Thr	Asn	Leu	Pro	Thr	Pro	Arg	Lys
225					230					235					240
Phe	Leu	Asp	Thr	Ser	His	Tyr	Ser	Thr	Ala	Gly	Ser	Ser	Ser	Val	Arg
				245					250					255	
Glu	Ile	Asn	Leu	Gln	Asp	Ile	Lys	Glu	Asp	Leu	Glu	Leu	Asp	Pro	Glu
		260						265					270		
Glu	Asn	Ser	Thr	Leu	Phe	Met	Gly	Ile	Leu	Ile	Lys	Gly	Leu	Ala	Lys
	275						280					285			
Leu	Lys	Lys	Ile	Pro	Glu	Thr	Val	Lys	Ala	Ile	Ile	Glu	Arg	Leu	Glu
	290					295					300				
Gln	Glu	Leu	Lys	Gln	Ile	Val	Lys	Arg	Ser	Thr	Thr	Gln	Val	Ala	Asp
305					310					315					320
Ser	Gly	Tyr	Gln	Arg	Gly	Glu	Asn	Val	Thr	Val	Glu	Asn	Gln	Pro	Arg
			325						330					335	
Leu	Leu	Leu	Glu	Leu	Leu	Glu	Leu	Leu	Phe	Asp	Lys	Phe	Asn	Ala	Val
			340					345					350		
Ala	Ala	Ala	His	Ser	Val	Val	Leu	Gly	Tyr	Leu	Gln	Asp	Thr	Val	Val
	355						360					365			
Thr	Pro	Leu	Thr	Gln	Gln	Glu	Asp	Ile	Lys	Leu	Tyr	Asp	Met	Ala	Asp
	370					375					380				
Val	Trp	Val	Lys	Ile	Gln	Asp	Val	Leu	Gln	Met	Leu	Leu	Thr	Glu	Tyr
385					390					395					400
Leu	Asp	Met	Lys	Asn	Thr	Arg	Thr	Ala	Ser	Glu	Pro	Ser	Ala	Gln	Leu

405										410					415				
Ser	Tyr	Ala	Ser	Thr	Gly	Arg	Glu	Phe	Ala	Ala	Phe	Phe	Ala	Lys	Lys				
			420					425						430					
Lys	Pro	Gln	Arg	Pro	Lys	Asn	Ser	Leu	Phe	Lys	Phe	Glu	Ser	Ser	Ser				
		435					440					445							
His	Ala	Ile	Ser	Met	Ser	Ala	Tyr	Leu	Arg	Glu	Gln	Arg	Arg	Glu	Leu				
		450				455					460								
Tyr	Ser	Arg	Ser	Gly	Glu	Leu	Gln	Gly	Gly	Pro	Asp	Asp	Asn	Leu	Ile				
465					470					475					480				
Glu	Gly	Gly	Gly	Thr	Lys	Phe	Val	Cys	Lys	Pro	Gly	Ala	Arg	Asn	Ile				
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Thr	Val	Ile	Phe	His	Pro	Leu	Leu	Arg	Phe	Ile	Gln	Glu	Ile	Glu	His				
			500					505					510						
Ala	Leu	Gly	Leu	Gly	Pro	Ala	Lys	Gln	Cys	Pro	Leu	Arg	Glu	Phe	Leu				
		515					520					525							
Thr	Val	Tyr	Ile	Lys	Asn	Ile	Phe	Leu	Asn	Gln	Val	Leu	Ala	Glu	Ile				
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Asn	Lys	Glu	Ile	Glu	Gly	Val	Thr	Lys	Thr	Ser	Asp	Pro	Leu	Lys	Ile				
545					550					555					560				
Leu	Ala	Asn	Ala	Asp	Thr	Met	Lys	Val	Leu	Gly	Val	Gln	Arg	Pro	Leu				
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Leu	Gln	Ser	Thr	Ile	Ile	Val	Glu	Lys	Thr	Val	Gln	Asp	Leu	Leu	Asn				
			580					585					590						
Leu	Met	His	Asp	Leu	Ser	Ala	Tyr	Ser	Asp	Gln	Phe	Leu	Asn	Met	Val				
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Cys	Val	Lys	Leu	Gln	Glu	Tyr	Lys	Asp	Thr	Cys	Thr	Ala	Ala	Tyr	Arg				
		610				615					620								
Gly	Ile	Val	Gln	Ser	Glu	Glu	Lys	Leu	Val	Ile	Ser	Ala	Ser	Trp	Ala				
625					630					635					640				
Lys	Asp	Asp	Asp	Ile	Ser	Arg	Leu	Leu	Lys	Ser	Leu	Pro	Asn	Trp	Met				
				645					650					655					
Asn	Met	Ala	Gln	Pro	Lys	Gln	Leu	Arg	Pro	Lys	Arg	Glu	Glu	Glu	Glu				
			660					665					670						
Asp	Phe	Ile	Arg	Ala	Ala	Phe	Gly	Lys	Glu	Ser	Glu	Val	Leu	Ile	Gly				
		675					680					685							
Asn	Leu	Gly	Asp	Lys	Leu	Ile	Pro	Pro	Gln	Asp	Ile	Leu	Arg	Asp	Val				
		690				695					700								
Ser	Asp	Leu	Lys	Ala	Leu	Ala	Asn	Met	His	Glu	Ser	Leu	Glu	Trp	Leu				

705	710	715	720
Ala Ser Arg Thr Lys Ser Ala Phe Ser Asn Leu Ser Thr Ser Gln Met			
	725	730	735
Leu Ser Pro Ala Gln Asp Ser His Thr Asn Thr Asp Leu Pro Pro Val			
	740	745	750
Ser Glu Gln Ile Met Gln Thr Leu Ser Glu Leu Ala Lys Ser Phe Gln			
	755	760	765
Asp Met Ala Asp Arg Cys Leu Leu Val Leu His Leu Glu Val Arg Val			
	770	775	780
His Cys Phe His Tyr Leu Ile Pro Leu Ala Lys Glu Gly Asn Tyr Ala			
	785	790	795
Ile Val Ala Asn Val Glu Ser Met Asp Tyr Asp Pro Leu Val Val Lys			
	805	810	815
Leu Asn Lys Asp Ile Ser Ala Ile Glu Glu Ala Met Ser Ala Ser Leu			
	820	825	830
Gln Gln His Lys Phe Gln Tyr Ile Phe Glu Gly Leu Gly His Leu Ile			
	835	840	845
Ser Cys Ile Leu Ile Asn Gly Ala Gln Tyr Phe Arg Arg Ile Ser Glu			
	850	855	860
Ser Gly Ile Lys Lys Met Cys Arg Asn Ile Phe Val Leu Gln Gln Asn			
	865	870	875
Leu Thr Asn Ile Thr Met Ser Arg Glu Ala Asp Leu Asp Phe Ala Arg			
	885	890	895
Gln Tyr Tyr Glu Met Leu Tyr Asn Thr Ala Asp Glu Leu Leu Asn Leu			
	900	905	910
Val Val Asp Gln Gly Val Lys Tyr Thr Glu Leu Glu Tyr Ile His Ala			
	915	920	925
Leu Thr Leu Leu His Arg Ser Gln Thr Gly Val Gly Glu Leu Thr Thr			
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Gln Asn Thr Ser Cys Arg Gly Gly Ser Lys Arg Ser Ser Ala Ser Arg			
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Leu Pro Ser Ser Lys Pro Pro Arg Thr Arg Arg			
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tct ttg tct gtt ggt tcc tgc gtg ata atc aaa ggg aca ctg atc gac 98
Ser Leu Ser Val Gly Ser Cys Val Ile Ile Lys Gly Thr Leu Ile Asp
      15              20              25

tct tct atc aac gaa cca cag ctg cag gtg gat ttc tac act gag atg 146
Ser Ser Ile Asn Glu Pro Gln Leu Gln Val Asp Phe Tyr Thr Glu Met
      30              35              40

aat gag gac tca gaa att gcc ttc cat ttg cga gtg cac tta ggc cgt 194
Asn Glu Asp Ser Glu Ile Ala Phe His Leu Arg Val His Leu Gly Arg
      45              50              55              60

cgt gtg gtc atg aac agt cgt gag ttt ggg ata tgg atg ttg gag gag 242
Arg Val Val Met Asn Ser Arg Glu Phe Gly Ile Trp Met Leu Glu Glu
      65              70              75

aat tta cac tat gtg ccc ttt gag gat ggc aaa cca ttt gac ttg cgc 290
Asn Leu His Tyr Val Pro Phe Glu Asp Gly Lys Pro Phe Asp Leu Arg
      80              85              90

atc tac gtg tgt ctc aat gag tat gag gta aag gta aat ggt gaa tac 338
Ile Tyr Val Cys Leu Asn Glu Tyr Glu Val Lys Val Asn Gly Glu Tyr
      95              100              105

att tat gcc ttt gtc cat cga atc ccg cca tca tat gtg aag atg att 386
Ile Tyr Ala Phe Val His Arg Ile Pro Pro Ser Tyr Val Lys Met Ile
      110              115              120

caa gtg tgg aga gat gtc tcc ctg gac tca gtg ctt gtc aac aat gga 434
Gln Val Trp Arg Asp Val Ser Leu Asp Ser Val Leu Val Asn Asn Gly
      125              130              135              140

cgg aga tgatcacact cctcattggt gaggaaccc tctttctacc tgaccatggg 490
Arg Arg

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<210>162

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Glu Pro Gln Leu Gln Val Asp Phe Tyr Thr Glu Met Asn Glu Asp Ser  
           35                          40                          45  
 Glu Ile Ala Phe His Leu Arg Val His Leu Gly Arg Arg Val Val Met  
           50                          55                          60  
 Asn Ser Arg Glu Phe Gly Ile Trp Met Leu Glu Glu Asn Leu His Tyr  
           65                          70                          75                          80  
 Val Pro Phe Glu Asp Gly Lys Pro Phe Asp Leu Arg Ile Tyr Val Cys  
                           85                          90                          95  
 Leu Asn Glu Tyr Glu Val Lys Val Asn Gly Glu Tyr Ile Tyr Ala Phe  
                           100                          105                          110  
 Val His Arg Ile Pro Pro Ser Tyr Val Lys Met Ile Gln Val Trp Arg  
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<211>2071

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<221> CDS

<222>(22)..(1999)

<400>163

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 gga gat gat att aaa ata tgg gat gct tca tct atg aca ttg gtg gat 99  
 Gly Asp Asp Ile Lys Ile Trp Asp Ala Ser Ser Met Thr Leu Val Asp  
                                   15                                  20                                  25  
 aaa ttc aac cca cac aca tca cca cat gga atc agc tca ata tgt tgg 147  
 Lys Phe Asn Pro His Thr Ser Pro His Gly Ile Ser Ser Ile Cys Trp  
                                   30                                  35                                  40  
 agc agc aat agt aac ttt tta gta aca gca tct tcc agt ggc gac aaa 195  
 Ser Ser Asn Ser Asn Phe Leu Val Thr Ala Ser Ser Ser Gly Asp Lys  
                                   45                                  50                                  55  
 ata gtt gtc tca agt tgc aaa tgt aaa cct gtt cca ctt tta gag ctt 243  
 Ile Val Val Ser Ser Cys Lys Cys Lys Pro Val Pro Leu Leu Glu Leu  
                                   60                                  65                                  70  
 gct gaa ggg caa aag cag aca tgt gtc aat tta aat tct aca tct atg 291  
 Ala Glu Gly Gln Lys Gln Thr Cys Val Asn Leu Asn Ser Thr Ser Met  
                                   75                                  80                                  85                                  90  
 tat ttg gta agc gga ggc cta aat aac act gtt aat att tgg gat tta 339  
 Tyr Leu Val Ser Gly Gly Leu Asn Asn Thr Val Asn Ile Trp Asp Leu

95	100	105	
aaa tca aaa aga gtt cat cga tct ctt aag gat cat aaa gat caa gta Lys Ser Lys Arg Val His Arg Ser Leu Lys Asp His Lys Asp Gln Val			387
110	115	120	
act tgt gta aca tac aat tgg aat gat tgc tac att gct tct gga tct Thr Cys Val Thr Tyr Asn Trp Asn Asp Cys Tyr Ile Ala Ser Gly Ser			435
125	130	135	
ctt agt ggt gaa att att tta cac agt gta acc act aat tta tct agt Leu Ser Gly Glu Ile Ile Leu His Ser Val Thr Thr Asn Leu Ser Ser			483
140	145	150	
act cct ttt ggc cat ggt agt aac cag gtt cgg cac ttg aag tac tcc Thr Pro Phe Gly His Gly Ser Asn Gln Val Arg His Leu Lys Tyr Ser			531
155	160	165	170
ttg ttt aag aaa tca cta ctg ggc agt gtt tcg gat aat gga ata gta Leu Phe Lys Lys Ser Leu Leu Gly Ser Val Ser Asp Asn Gly Ile Val			579
175	180	185	
act ctc tgg gat gta aat agt cag agt cca tac cat aac ttt gac agt Thr Leu Trp Asp Val Asn Ser Gln Ser Pro Tyr His Asn Phe Asp Ser			627
190	195	200	
gta cac aaa gct cca gcg tca ggc atc tgt ttt tct cct gtc aat gaa Val His Lys Ala Pro Ala Ser Gly Ile Cys Phe Ser Pro Val Asn Glu			675
205	210	215	
ttg ctc ttt gta acc ata ggc ttg gat aaa aga atc atc ctc tat gac Leu Leu Phe Val Thr Ile Gly Leu Asp Lys Arg Ile Ile Leu Tyr Asp			723
220	225	230	
act tca agt aag aag cta gtg aaa act tta gtg gct gac act cct cta Thr Ser Ser Lys Lys Leu Val Lys Thr Leu Val Ala Asp Thr Pro Leu			771
235	240	245	250
act gcg gta gat ttc atg cct gat gga gcc act ttg gct att gga tct Thr Ala Val Asp Phe Met Pro Asp Gly Ala Thr Leu Ala Ile Gly Ser			819
255	260	265	
tcc cgg ggg aaa ata tat caa tat gat tta aga atg ttg aaa tca cca Ser Arg Gly Lys Ile Tyr Gln Tyr Asp Leu Arg Met Leu Lys Ser Pro			867
270	275	280	
gtt aag acc atc agt gct cac aag aca tct gtg cag tgt ata gca ttt Val Lys Thr Ile Ser Ala His Lys Thr Ser Val Gln Cys Ile Ala Phe			915
285	290	295	
cag tac tcc act gtt ctt act aag tca agt tta aat aaa ggc tgt tca Gln Tyr Ser Thr Val Leu Thr Lys Ser Ser Leu Asn Lys Gly Cys Ser			963
300	305	310	
aat aag ccc aca aca gtg aac aaa cga agt gtt aat gtg aat gct gct Asn Lys Pro Thr Thr Val Asn Lys Arg Ser Val Asn Val Asn Ala Ala			1011
315	320	325	330

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Ser Gly Gly Val Gln Asn Ser Gly Ile Val Arg Glu Ala Pro Ala Thr	
335 340 345	
tcc att gcc aca gtt cta cca caa cct atg aca tca gct atg ggg aaa	1107
Ser Ile Ala Thr Val Leu Pro Gln Pro Met Thr Ser Ala Met Gly Lys	
350 355 360	
gga aca gtt gct gtt caa gaa aaa gca ggt ttg cct cga agc ata aac	1155
Gly Thr Val Ala Val Gln Glu Lys Ala Gly Leu Pro Arg Ser Ile Asn	
365 370 375	
aca gac act tta tct aag gaa aca gac agt gga aaa aat cag gat ttc	1203
Thr Asp Thr Leu Ser Lys Glu Thr Asp Ser Gly Lys Asn Gln Asp Phe	
380 385 390	
tcc agc ttt gat gat act ggg aaa agt agt tta ggt gac atg ttc tca	1251
Ser Ser Phe Asp Asp Thr Gly Lys Ser Ser Leu Gly Asp Met Phe Ser	
395 400 405 410	
cct atc aga gat gat gct gta gtt aac aag gga agt gat gag tcc ata	1299
Pro Ile Arg Asp Asp Ala Val Val Asn Lys Gly Ser Asp Glu Ser Ile	
415 420 425	
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Pro Pro Arg Lys Asn Pro Val Thr Ser Ser Thr Ser Val Leu His Ser	
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Ser Pro Leu Asn Val Phe Met Gly Ser Pro Gly Lys Glu Glu Asn Glu	
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Asn Arg Asp Leu Thr Ala Glu Ser Lys Lys Ile Tyr Met Gly Lys Gln	
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Glu Ser Lys Asp Ser Phe Lys Gln Leu Ala Lys Leu Val Thr Ser Gly	
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Ala Glu Ser Gly Asn Leu Asn Thr Ser Pro Ser Ser Asn Gln Thr Arg	
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Asn Ser Glu Lys Phe Glu Lys Pro Glu Asn Glu Ile Glu Ala Gln Leu	
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Tyr Ser Val Asn Glu Gly Leu Val Ala Glu Ile Glu Arg Leu Arg Glu  
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Lys Cys Lys Pro Val Pro Leu Leu Glu Leu Ala Glu Gly Gln Lys Gln  
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 Ser Asn Gln Val Arg His Leu Lys Tyr Ser Leu Phe Lys Lys Ser Leu  
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 180 185 190  
 Ser Gln Ser Pro Tyr His Asn Phe Asp Ser Val His Lys Ala Pro Ala  
 195 200 205  
 Ser Gly Ile Cys Phe Ser Pro Val Asn Glu Leu Leu Phe Val Thr Ile  
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 Gly Leu Asp Lys Arg Ile Ile Leu Tyr Asp Thr Ser Ser Lys Lys Leu  
 225 230 235 240  
 Val Lys Thr Leu Val Ala Asp Thr Pro Leu Thr Ala Val Asp Phe Met  
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 Pro Asp Gly Ala Thr Leu Ala Ile Gly Ser Ser Arg Gly Lys Ile Tyr  
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 Gln Tyr Asp Leu Arg Met Leu Lys Ser Pro Val Lys Thr Ile Ser Ala  
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 His Lys Thr Ser Val Gln Cys Ile Ala Phe Gln Tyr Ser Thr Val Leu  
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 Gly Val Ala Ser Ser Leu Ser Glu Lys Ile Ala Asp Ser Ile Gly Asn  
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Lys Phe Asn Pro His Thr Ser Pro His Gly Ile Ser Ser Ile Cys Trp
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Tyr Leu Val Ser Gly Gly Leu Asn Asn Thr Val Asn Ile Trp Asp Leu
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Lys Ser Lys Arg Val His Arg Ser Leu Lys Asp His Lys Asp Gln Val
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Thr Cys Val Thr Tyr Asn Trp Asn Asp Cys Tyr Ile Ala Ser Gly Ser
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Leu Ser Gly Glu Ile Ile Leu His Ser Val Thr Thr Asn Leu Ser Ser
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Ser Leu Phe Lys Lys Ser Leu Leu Gly Ser Val Ser Asp Asn Gly Ile
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gta act ctc tgg gat gta aat agt cag agt cca tac cat aac ttt gac 627
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Asp Thr Ser Ser Lys Lys Leu Val Lys Thr Leu Val Ala Asp Thr Pro	
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Arg Asp Ile Val Asn Leu Gln Val Glu Met Ile Lys Gln Phe His Met  
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Ile His Lys Ser Phe His Asn Ile His Pro Ala Pro Ser Gln Leu Arg  
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Cys Arg Ser Leu Ser Glu Phe Gly Ala Pro Arg Trp Asn Asp Tyr Glu  
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Ser Gly Trp Ile Val Ala Thr Ile Trp Thr Leu Val Glu Pro Trp Thr	
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365 370 375 380

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385 390 395

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ggg gac ttc tac aac act ggg gac aga ggt aag atg gat gaa gag ggc 1392  
Gly Asp Phe Tyr Asn Thr Gly Asp Arg Gly Lys Met Asp Glu Glu Gly  
445 450 455 460

tac att tgt ttc ctg ggg agg agt gat gac atc att aat gcc tct ggg 1440  
Tyr Ile Cys Phe Leu Gly Arg Ser Asp Asp Ile Ile Asn Ala Ser Gly  
465 470 475

tat cgc atc ggg cct gca gag gtt gaa agc gct ttg gtg gag cac cca 1488  
Tyr Arg Ile Gly Pro Ala Glu Val Glu Ser Ala Leu Val Glu His Pro  
480 485 490

gcg gtg gcg gag tca gcc gtg gtg ggc agc cca gac ccg att cga ggg 1536  
Ala Val Ala Glu Ser Ala Val Val Gly Ser Pro Asp Pro Ile Arg Gly  
495 500 505

gag gtg gtg aag gcc ttt att gtc ctg acc cca cag ttc ctg tcc cat 1584  
Glu Val Val Lys Ala Phe Ile Val Leu Thr Pro Gln Phe Leu Ser His  
510 515 520

gac aag gat cag ctg acc aag gaa ctg cag cag cat gtc aag tca gtg 1632  
Asp Lys Asp Gln Leu Thr Lys Glu Leu Gln Gln His Val Lys Ser Val  
525 530 535 540

aca gcc cca tac aag tac cca agg aag gtg gag ttt gtc tca gag ctg 1680  
Thr Ala Pro Tyr Lys Tyr Pro Arg Lys Val Glu Phe Val Ser Glu Leu  
545 550 555

cca aaa acc atc act ggc aag att gaa cgg aag gaa ctt cgg aaa aag 1728

Pro Lys Thr Ile Thr Gly Lys Ile Glu Arg Lys Glu Leu Arg Lys Lys  
560 565 570

gag act ggt cag atg taatcggcag tgaactcaga acgcactg  
Glu Thr Gly Gln Met  
575

1771

<210>168  
<211>577  
<212>PRT  
<213> Homo sapiens

<400>168  
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1 5 10 15

Phe His Asn Ile His Pro Ala Pro Ser Gln Leu Arg Cys Arg Ser Leu  
20 25 30

Ser Glu Phe Gly Ala Pro Arg Trp Asn Asp Tyr Glu Val Pro Glu Glu  
35 40 45

Phe Asn Phe Ala Ser Tyr Val Leu Asp Tyr Trp Ala Gln Lys Glu Lys  
50 55 60

Glu Gly Lys Arg Gly Pro Asn Pro Ala Phe Trp Trp Val Asn Gly Gln  
65 70 75 80

Gly Asp Glu Val Lys Trp Ser Phe Arg Glu Met Gly Asp Leu Thr Arg  
85 90 95

Arg Val Ala Asn Val Phe Thr Gln Thr Cys Gly Leu Gln Gln Gly Asp  
100 105 110

His Leu Ala Leu Met Leu Pro Arg Val Pro Glu Trp Trp Leu Val Ala  
115 120 125

Val Gly Cys Met Arg Thr Gly Ile Ile Phe Ile Pro Ala Thr Ile Leu  
130 135 140

Leu Lys Ala Lys Asp Ile Leu Tyr Arg Leu Gln Leu Ser Lys Ala Lys  
145 150 155 160

Gly Ile Val Thr Ile Asp Ala Leu Ala Ser Glu Val Asp Ser Ile Ala  
165 170 175

Ser Gln Cys Pro Ser Leu Lys Thr Lys Leu Leu Val Ser Asp His Ser  
180 185 190

Arg Glu Gly Trp Leu Asp Phe Arg Ser Leu Val Lys Ser Ala Ser Pro  
195 200 205

Glu His Thr Cys Val Lys Ser Lys Thr Leu Asp Pro Met Val Ile Phe  
210 215 220

Phe Thr Ser Gly Thr Thr Gly Phe Pro Lys Met Ala Lys His Ser His  
225 230 235 240

Gly Leu Ala Leu Gln Pro Ser Phe Pro Gly Ser Arg Lys Leu Arg Ser  
 245 250 255  
 Leu Lys Thr Ser Asp Val Ser Trp Cys Leu Ser Asp Ser Gly Trp Ile  
 260 265 270  
 Val Ala Thr Ile Trp Thr Leu Val Glu Pro Trp Thr Ala Gly Cys Thr  
 275 280 285  
 Val Phe Ile His His Leu Pro Gln Phe Asp Thr Lys Val Ile Ile Gln  
 290 295 300  
 Thr Leu Leu Lys Tyr Pro Ile Asn His Phe Trp Gly Val Ser Ser Ile  
 305 310 315 320  
 Tyr Arg Met Ile Leu Gln Gln Asp Phe Thr Ser Ile Arg Phe Pro Ala  
 325 330 335  
 Leu Glu His Cys Tyr Thr Gly Gly Glu Val Val Leu Pro Lys Asp Gln  
 340 345 350  
 Glu Glu Trp Lys Arg Arg Thr Gly Leu Leu Leu Tyr Glu Asn Tyr Gly  
 355 360 365  
 Gln Ser Glu Thr Gly Leu Ile Cys Ala Thr Tyr Trp Gly Met Lys Ile  
 370 375 380  
 Lys Pro Gly Phe Met Gly Lys Ala Thr Pro Pro Tyr Asp Val Gln Val  
 385 390 395 400  
 Ile Asp Asp Lys Gly Ser Ile Leu Pro Pro Asn Thr Glu Gly Asn Ile  
 405 410 415  
 Gly Ile Arg Ile Lys Pro Val Arg Pro Val Ser Leu Phe Met Cys Tyr  
 420 425 430  
 Glu Gly Asp Pro Glu Lys Thr Ala Lys Val Glu Cys Gly Asp Phe Tyr  
 435 440 445  
 Asn Thr Gly Asp Arg Gly Lys Met Asp Glu Glu Gly Tyr Ile Cys Phe  
 450 455 460  
 Leu Gly Arg Ser Asp Asp Ile Ile Asn Ala Ser Gly Tyr Arg Ile Gly  
 465 470 475 480  
 Pro Ala Glu Val Glu Ser Ala Leu Val Glu His Pro Ala Val Ala Glu  
 485 490 495  
 Ser Ala Val Val Gly Ser Pro Asp Pro Ile Arg Gly Glu Val Val Lys  
 500 505 510  
 Ala Phe Ile Val Leu Thr Pro Gln Phe Leu Ser His Asp Lys Asp Gln  
 515 520 525  
 Leu Thr Lys Glu Leu Gln Gln His Val Lys Ser Val Thr Ala Pro Tyr  
 530 535 540

Lys Tyr Pro Arg Lys Val Glu Phe Val Ser Glu Leu Pro Lys Thr Ile  
 545 550 555 560

Thr Gly Lys Ile Glu Arg Lys Glu Leu Arg Lys Lys Glu Thr Gly Gln  
 565 570 575

Met

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 <211>1659  
 <212>DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222>(9)..(1638)  
 <400>169

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1 5 10	
cac aaa tcc ttc cac aac atc cac cct gcc cct tca cag ctg cgc tgc	95
His Lys Ser Phe His Asn Ile His Pro Ala Pro Ser Gln Leu Arg Cys	
15 20 25	
cgg tct tta tca gaa ttt gga gcc cca aga tgg aat gac tat gaa gta	143
Arg Ser Leu Ser Glu Phe Gly Ala Pro Arg Trp Asn Asp Tyr Glu Val	
30 35 40 45	
ccg gag gaa ttt aac ttt gca agt tat gta ctg gac tac tgg gct caa	191
Pro Glu Glu Phe Asn Phe Ala Ser Tyr Val Leu Asp Tyr Trp Ala Gln	
50 55 60	
aag gag aag gag ggc aag aga ggt cca aat cca gct ttt tgg tgg gtg	239
Lys Glu Lys Glu Gly Lys Arg Gly Pro Asn Pro Ala Phe Trp Trp Val	
65 70 75	
aat ggc caa ggg gat gaa gta aag tgg agc ttc aga gag atg gga gac	287
Asn Gly Gln Gly Asp Glu Val Lys Trp Ser Phe Arg Glu Met Gly Asp	
80 85 90	
cta acc cgc cgt gta gcc aac gtc ttc aca cag acc tgt ggc cta caa	335
Leu Thr Arg Arg Val Ala Asn Val Phe Thr Gln Thr Cys Gly Leu Gln	
95 100 105	
cag gga gac cat ctg gcc ttg atg ctg cct cga gtt cct gag tgg tgg	383
Gln Gly Asp His Leu Ala Leu Met Leu Pro Arg Val Pro Glu Trp Trp	
110 115 120 125	
ctg gtg gct gtg ggc tgc atg cga aca ggg atc atc ttc att cct gcg	431
Leu Val Ala Val Gly Cys Met Arg Thr Gly Ile Ile Phe Ile Pro Ala	
130 135 140	
acc atc ctg ttg aag gcc aaa gac att ctc tat cga cta cag ttg tct	479
Thr Ile Leu Leu Lys Ala Lys Asp Ile Leu Tyr Arg Leu Gln Leu Ser	

145	150	155	
aaa gcc aag ggc att gtg acc ata gat gcc ctt gcc tca gag gtg gac			527
Lys Ala Lys Gly Ile Val Thr Ile Asp Ala Leu Ala Ser Glu Val Asp			
160	165	170	
tcc ata gct tct cag tgc ccc tct ctg aaa acc aag ctc ctg gtg tct			575
Ser Ile Ala Ser Gln Cys Pro Ser Leu Lys Thr Lys Leu Leu Val Ser			
175	180	185	
gat cac agc cgt gaa ggg tgg ctg gac ttc cga tcg ctg gtt aaa tca			623
Asp His Ser Arg Glu Gly Trp Leu Asp Phe Arg Ser Leu Val Lys Ser			
190	195	200	205
gca tcc cca gaa cac acc tgt gtt aag tca aag acc ttg gac cca atg			671
Ala Ser Pro Glu His Thr Cys Val Lys Ser Lys Thr Leu Asp Pro Met			
210	215	220	
gtc atc ttc ttc acc agt ggg acc aca ggc ttc ccc aag atg gca aaa			719
Val Ile Phe Phe Thr Ser Gly Thr Thr Gly Phe Pro Lys Met Ala Lys			
225	230	235	
cac tcc cat ggg ttg gcc tta caa ccc tcc ttc cca gga agt agg aaa			767
His Ser His Gly Leu Ala Leu Gln Pro Ser Phe Pro Gly Ser Arg Lys			
240	245	250	
tta cgg agc ctg aag aca tct gat gtc tcc tgg tgc ctg tcg gac tca			815
Leu Arg Ser Leu Lys Thr Ser Asp Val Ser Trp Cys Leu Ser Asp Ser			
255	260	265	
gga tgg att gtg gct acc att tgg acc ctg gta gaa cca tgg aca gcg			863
Gly Trp Ile Val Ala Thr Ile Trp Thr Leu Val Glu Pro Trp Thr Ala			
270	275	280	285
ggg tgt aca gtc ttt atc cac cat ctg cca cag ttt gac acc aag gtc			911
Gly Cys Thr Val Phe Ile His His Leu Pro Gln Phe Asp Thr Lys Val			
290	295	300	
atc ata cag aca ttg ttg aaa tac ccc att aac cac ttt tgg ggg gta			959
Ile Ile Gln Thr Leu Leu Lys Tyr Pro Ile Asn His Phe Trp Gly Val			
305	310	315	
tca tct ata tat cga atg att ctg cag cag gat ttc acc agc atc agg			1007
Ser Ser Ile Tyr Arg Met Ile Leu Gln Gln Asp Phe Thr Ser Ile Arg			
320	325	330	
ttc cct gcc ctg gag cac tgc tat act ggc ggg gag gtc gtg ttg ccc			1055
Phe Pro Ala Leu Glu His Cys Tyr Thr Gly Gly Glu Val Val Leu Pro			
335	340	345	
aag gat cag gag gag tgg aaa aga cgg acg ggc ctt ctg ctc tac gag			1103
Lys Asp Gln Glu Glu Trp Lys Arg Arg Thr Gly Leu Leu Leu Tyr Glu			
350	355	360	365
aac tat ggg cag tcg gaa acg gga cta att tgt gcc acc tac tgg gga			1151
Asn Tyr Gly Gln Ser Glu Thr Gly Leu Ile Cys Ala Thr Tyr Trp Gly			
370	375	380	

atg aag atc aag ccg ggt ttc atg ggg aag gcc act cca ccc tac gac 1199  
 Met Lys Ile Lys Pro Gly Phe Met Gly Lys Ala Thr Pro Pro Tyr Asp  
 385 390 395

gtc cag ggt gac cca gag aag aca gct aaa gtg gaa tgt ggg gac ttc 1247  
 Val Gln Gly Asp Pro Glu Lys Thr Ala Lys Val Glu Cys Gly Asp Phe  
 400 405 410

tac aac act ggg gac aga gga aag atg gat gaa gag ggc tac att tgt 1295  
 Tyr Asn Thr Gly Asp Arg Gly Lys Met Asp Glu Glu Gly Tyr Ile Cys  
 415 420 425

ttc ctg ggg agg agt gat gac atc att aat gcc tct ggg tat cgc atc 1343  
 Phe Leu Gly Arg Ser Asp Ile Ile Asn Ala Ser Gly Tyr Arg Ile  
 430 435 440 445

ggg cct gca gag gtt gaa agt gct ttg gtg gag cac cca gcg gtg gcg 1391  
 Gly Pro Ala Glu Val Glu Ser Ala Leu Val Glu His Pro Ala Val Ala  
 450 455 460

gag tca gcc gtg gtg ggc agc cca gac ccg att cga ggg gag gtg gtg 1439  
 Glu Ser Ala Val Val Gly Ser Pro Asp Pro Ile Arg Gly Glu Val Val  
 465 470 475

aag gcc ttt att gtc ctg acc cca cag ttc ctg tcc cat gac aag gat 1487  
 Lys Ala Phe Ile Val Leu Thr Pro Gln Phe Leu Ser His Asp Lys Asp  
 480 485 490

cag ctg acc aag gaa ctg cag cag cat gtc aag tca gtg aca gcc cca 1535  
 Gln Leu Thr Lys Glu Leu Gln Gln His Val Lys Ser Val Thr Ala Pro  
 495 500 505

tac aag tac cca agg aaa gtg gag ttt gtc tca gag ctg cca aaa acc 1583  
 Tyr Lys Tyr Pro Arg Lys Val Glu Phe Val Ser Glu Leu Pro Lys Thr  
 510 515 520 525

atc act ggc aag att gaa cgg aag gaa ctt cgg aaa aag gag act ggt 1631  
 Ile Thr Gly Lys Ile Glu Arg Lys Glu Leu Arg Lys Lys Glu Thr Gly  
 530 535 540

cag atg taatcggcag tgaactcaga ac 1659  
 Gln Met

<210>170

<211>543

<212>PRT

<213> Homo sapiens

<400>170

Met Gln Trp Leu Met Arg Phe Arg Thr Leu Trp Gly Ile His Lys Ser  
 1 5 10 15

Phe His Asn Ile His Pro Ala Pro Ser Gln Leu Arg Cys Arg Ser Leu  
 20 25 30

Ser Glu Phe Gly Ala Pro Arg Trp Asn Asp Tyr Glu Val Pro Glu Glu  
 35 40 45  
 Phe Asn Phe Ala Ser Tyr Val Leu Asp Tyr Trp Ala Gln Lys Glu Lys  
 50 55 60  
 Glu Gly Lys Arg Gly Pro Asn Pro Ala Phe Trp Trp Val Asn Gly Gln  
 65 70 75 80  
 Gly Asp Glu Val Lys Trp Ser Phe Arg Glu Met Gly Asp Leu Thr Arg  
 85 90 95  
 Arg Val Ala Asn Val Phe Thr Gln Thr Cys Gly Leu Gln Gln Gly Asp  
 100 105 110  
 His Leu Ala Leu Met Leu Pro Arg Val Pro Glu Trp Trp Leu Val Ala  
 115 120 125  
 Val Gly Cys Met Arg Thr Gly Ile Ile Phe Ile Pro Ala Thr Ile Leu  
 130 135 140  
 Leu Lys Ala Lys Asp Ile Leu Tyr Arg Leu Gln Leu Ser Lys Ala Lys  
 145 150 155 160  
 Gly Ile Val Thr Ile Asp Ala Leu Ala Ser Glu Val Asp Ser Ile Ala  
 165 170 175  
 Ser Gln Cys Pro Ser Leu Lys Thr Lys Leu Leu Val Ser Asp His Ser  
 180 185 190  
 Arg Glu Gly Trp Leu Asp Phe Arg Ser Leu Val Lys Ser Ala Ser Pro  
 195 200 205  
 Glu His Thr Cys Val Lys Ser Lys Thr Leu Asp Pro Met Val Ile Phe  
 210 215 220  
 Phe Thr Ser Gly Thr Thr Gly Phe Pro Lys Met Ala Lys His Ser His  
 225 230 235 240  
 Gly Leu Ala Leu Gln Pro Ser Phe Pro Gly Ser Arg Lys Leu Arg Ser  
 245 250 255  
 Leu Lys Thr Ser Asp Val Ser Trp Cys Leu Ser Asp Ser Gly Trp Ile  
 260 265 270  
 Val Ala Thr Ile Trp Thr Leu Val Glu Pro Trp Thr Ala Gly Cys Thr  
 275 280 285  
 Val Phe Ile His His Leu Pro Gln Phe Asp Thr Lys Val Ile Ile Gln  
 290 295 300  
 Thr Leu Leu Lys Tyr Pro Ile Asn His Phe Trp Gly Val Ser Ser Ile  
 305 310 315 320  
 Tyr Arg Met Ile Leu Gln Gln Asp Phe Thr Ser Ile Arg Phe Pro Ala  
 325 330 335



Leu Glu His Cys Tyr Thr Gly Gly Glu Val Val Leu Pro Lys Asp Gln  
 340 345 350  
 Glu Glu Trp Lys Arg Arg Thr Gly Leu Leu Leu Tyr Glu Asn Tyr Gly  
 355 360 365  
 Gln Ser Glu Thr Gly Leu Ile Cys Ala Thr Tyr Trp Gly Met Lys Ile  
 370 375 380  
 Lys Pro Gly Phe Met Gly Lys Ala Thr Pro Pro Tyr Asp Val Gln Gly  
 385 390 395 400  
 Asp Pro Glu Lys Thr Ala Lys Val Glu Cys Gly Asp Phe Tyr Asn Thr  
 405 410 415  
 Gly Asp Arg Gly Lys Met Asp Glu Glu Gly Tyr Ile Cys Phe Leu Gly  
 420 425 430  
 Arg Ser Asp Asp Ile Ile Asn Ala Ser Gly Tyr Arg Ile Gly Pro Ala  
 435 440 445  
 Glu Val Glu Ser Ala Leu Val Glu His Pro Ala Val Ala Glu Ser Ala  
 450 455 460  
 Val Val Gly Ser Pro Asp Pro Ile Arg Gly Glu Val Val Lys Ala Phe  
 465 470 475 480  
 Ile Val Leu Thr Pro Gln Phe Leu Ser His Asp Lys Asp Gln Leu Thr  
 485 490 495  
 Lys Glu Leu Gln Gln His Val Lys Ser Val Thr Ala Pro Tyr Lys Tyr  
 500 505 510  
 Pro Arg Lys Val Glu Phe Val Ser Glu Leu Pro Lys Thr Ile Thr Gly  
 515 520 525  
 Lys Ile Glu Arg Lys Glu Leu Arg Lys Lys Glu Thr Gly Gln Met  
 530 535 540

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 <211>2501  
 <212>DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222>(6)..(726)  
 <400>171

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 Met Thr Thr Leu Asp Asp Lys Leu Leu Gly Glu Lys Leu Gln  
 1 5 10  
 tac tac tat agc agc agt gag gat gag gac agt gac cac gag gac aag 95  
 Tyr Tyr Tyr Ser Ser Ser Glu Asp Glu Asp Ser Asp His Glu Asp Lys  
 15 20 25 30  
 gac cga ggc aga tgt gcc cca gcc agc agt tct gtg cct gca gag gct 143

Asp Arg Gly Arg Cys Ala Pro Ala Ser Ser Ser Val Pro Ala Glu Ala	
35 40 45	
gag ctg gca ggc gaa ggc atc tca gtt aac aca atg act ctg aag gag	191
Glu Leu Ala Gly Glu Gly Ile Ser Val Asn Thr Met Thr Leu Lys Glu	
50 55 60	
ttt gcc ata atg aat gag gac caa gat gat gaa gag ttt ctg cag cag	239
Phe Ala Ile Met Asn Glu Asp Gln Asp Asp Glu Glu Phe Leu Gln Gln	
65 70 75	
tac cgg aag cag cga atg gaa gag atg cgg cag cag ctt cac aag ggg	287
Tyr Arg Lys Gln Arg Met Glu Glu Met Arg Gln Gln Leu His Lys Gly	
80 85 90	
ccc caa ttc aag cag gtt ttt gag atc tcc agt gga gaa ggg ttt tta	335
Pro Gln Phe Lys Gln Val Phe Glu Ile Ser Ser Gly Glu Gly Phe Leu	
95 100 105 110	
gac atg att gat aaa gaa cag aaa agc att gtc atc atg gtt cat att	383
Asp Met Ile Asp Lys Glu Gln Lys Ser Ile Val Ile Met Val His Ile	
115 120 125	
tat gag gat ggc att cca ggg acc gaa gcc atg aat ggt tgc atg atc	431
Tyr Glu Asp Gly Ile Pro Gly Thr Glu Ala Met Asn Gly Cys Met Ile	
130 135 140	
tgc ctt gcc gca gag tac cca gct gtc aag ttc tgc aag gtg aag agc	479
Cys Leu Ala Ala Glu Tyr Pro Ala Val Lys Phe Cys Lys Val Lys Ser	
145 150 155	
tca gtt att ggc gcc agc agt cag ttc acc agg aat gcc ctt cct gcc	527
Ser Val Ile Gly Ala Ser Ser Gln Phe Thr Arg Asn Ala Leu Pro Ala	
160 165 170	
ctg ctg atc tat aag ggg ggt gaa ttg atc ggc aat ttt gtt cgt gtt	575
Leu Leu Ile Tyr Lys Gly Gly Glu Leu Ile Gly Asn Phe Val Arg Val	
175 180 185 190	
act gac cag ctg ggg gat gat ttc ttt gct gtg gac ctt gaa gct ttt	623
Thr Asp Gln Leu Gly Asp Asp Phe Phe Ala Val Asp Leu Glu Ala Phe	
195 200 205	
ctc cag gaa ttt gga tta ctc cca gaa aag gaa gtc ttg gtg ctg aca	671
Leu Gln Glu Phe Gly Leu Leu Pro Glu Lys Glu Val Leu Val Leu Thr	
210 215 220	
tct gtg cgt aac tct gcc acg tgt cac agt gag gat agc gac ctg gaa	719
Ser Val Arg Asn Ser Ala Thr Cys His Ser Glu Asp Ser Asp Leu Glu	
225 230 235	
ata gat tgaactgata gtctagtgtc atagatttct cattgttttg gttggaatac	775
Ile Asp	
240	
acgtcattgt ttatttttgt tcctttgtct tctggctttt cagctgttct	825

ttgtagtccc ttttattatg cataaaataa agaaattctt agattaaatc	875
agaatgctga ataaccttgt agctagcaat aaggtgactt acaattgtat	925
aaacaggaag ccaggctttt gaactgttta cttaagattc tgtggtgtga	975
catctctgtt attgtttcca gtcaatattt acaaagcatc ctaaagacag	1025
ggctcttgaa attgtcttca gatgatctta gaggtctctg ccaagtctga	1075
gagtataatt ctgtaggtat tgtgttattt gcaacgtaaa tagtgcattt	1125
tcttaatcaa atgattgtaa attatattta cttgtaatca gttccatagc	1175
tttagacggt ggtagattt tttttttccc caccagggtc ttgtttaaag	1225
gggtgagcca ccgcacccag tcctgagggg tggcctctgc tgctggattt	1275
catgtcttcc tccagcatga ctaagtctgg aacagcagga agggttgatg	1325
cttactgacc tggatgatgtt agaagacaag tagtttatgg atttaaacad	1375
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gatgccctg cttgtctttg tctctttttt gtttaacaag gtaacttttt	1475
gtttaacaag gtaacttttt gtttaaccta gatttttttt aaaacttttt	1525

ttttttttca tattggaaaa gtaattcata ttcagtagag gaaaactgac	1575
caaaacagaa gcaaaaataa gaaaattaaa ataatctcta atcctactac	1625
ctagaataaa aactatttaa ttttttggtc tgtttcctgc caagtggtt	1675
tctgtgtata catggatatt ttgtttgtt ttaaacaaaa cgatgggatc	1725
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tattccatcg tatagatgtg atataatttg cttgatgggt gtctcttaaa	1875
aagaaagata gcaaatactt tttttaaatt acaaaagtga tagatgttca	1925
ttgtagaaaa tgtaataaac actgttaaga cttaaagcc atataattcc	1975
accaaccaa attaatccct ttgtcatat ttctagtcac ttttatagcc	2025
ttttttttct atgtatttat aataattatc atttgcgtt ttttccttt	2075
tttaacttta aaaatgtata ttctagggc aggggaaatg taatctggaa	2125
ttaaatatta gccttaaaat tcacaatttt gattttcctg gcttttcagg	2175
aattgactaa ctgtaaaaga gtcttgaaag tatttagtca acaaacagag	2225

tgcatttttt tttttttgac taagaaagct cgttgtagta gaaagggtagg 2275  
 aatgtattga aaattattag aagcagggaa gtattgtag tctagcttat 2325  
 ttcctttcag tcttttttca atatttttat aaacattgag tacttactga 2375  
 atttagttct gtgctcttcc ttatttagtg ttgtatcata aatactttga 2425  
 tgtttcaaac attctaaata aataattttc agtggcttca taataaaaaa 2475  
 aaaaaaaaaa aaaaaaaaaa aaaaaa 2501

<210>172  
 <211>240  
 <212>PRT  
 <213> Homo sapiens

<400>172  
 Met Thr Thr Leu Asp Asp Lys Leu Leu Gly Glu Lys Leu Gln Tyr Tyr  
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 Tyr Ser Ser Ser Glu Asp Glu Asp Ser Asp His Glu Asp Lys Asp Arg  
 20 25 30  
 Gly Arg Cys Ala Pro Ala Ser Ser Ser Val Pro Ala Glu Ala Glu Leu  
 35 40 45  
 Ala Gly Glu Gly Ile Ser Val Asn Thr Met Thr Leu Lys Glu Phe Ala  
 50 55 60  
 Ile Met Asn Glu Asp Gln Asp Asp Glu Glu Phe Leu Gln Gln Tyr Arg  
 65 70 75 80  
 Lys Gln Arg Met Glu Glu Met Arg Gln Gln Leu His Lys Gly Pro Gln  
 85 90 95  
 Phe Lys Gln Val Phe Glu Ile Ser Ser Gly Glu Gly Phe Leu Asp Met  
 100 105 110  
 Ile Asp Lys Glu Gln Lys Ser Ile Val Ile Met Val His Ile Tyr Glu  
 115 120 125  
 Asp Gly Ile Pro Gly Thr Glu Ala Met Asn Gly Cys Met Ile Cys Leu  
 130 135 140

Ala Ala Glu Tyr Pro Ala Val Lys Phe Cys Lys Val Lys Ser Ser Val  
 145 150 155 160

Ile Gly Ala Ser Ser Gln Phe Thr Arg Asn Ala Leu Pro Ala Leu Leu  
 165 170 175

Ile Tyr Lys Gly Gly Glu Leu Ile Gly Asn Phe Val Arg Val Thr Asp  
 180 185 190

Gln Leu Gly Asp Asp Phe Phe Ala Val Asp Leu Glu Ala Phe Leu Gln  
 195 200 205

Glu Phe Gly Leu Leu Pro Glu Lys Glu Val Leu Val Leu Thr Ser Val  
 210 215 220

Arg Asn Ser Ala Thr Cys His Ser Glu Asp Ser Asp Leu Glu Ile Asp  
 225 230 235 240

<210>173

<211>893

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(5)..(749)

<400>173

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 Met Thr Thr Leu Tyr Asp Lys Leu Leu Gly Glu Lys Leu Gln  
 1 5 10

tac tac tat agc agc agt gaa gat gag gac agt gac cac gag gac aag 94  
 Tyr Tyr Tyr Ser Ser Glu Asp Glu Asp Ser Asp His Glu Asp Lys  
 15 20 25 30

gac cga ggc atc tca gtt aac aca ggc cca aaa ggt gtg atc aat gac 142  
 Asp Arg Gly Ile Ser Val Asn Thr Gly Pro Lys Gly Val Ile Asn Asp  
 35 40 45

tgg cgc cgc ttc aag cag ttg gag aca gag cag agg gag gag cag tgc 190  
 Trp Arg Arg Phe Lys Gln Leu Glu Thr Glu Gln Arg Glu Glu Gln Cys  
 50 55 60

cgg gag atg gaa agg ctg atc aag aag ctg tca atg act tgc agg tcc 238  
 Arg Glu Met Glu Arg Leu Ile Lys Lys Leu Ser Met Thr Cys Arg Ser  
 65 70 75

cat ctg gat gaa gag gag gag caa cag aaa cag aaa gac ctc cag gag 286  
 His Leu Asp Glu Glu Glu Glu Gln Gln Lys Gln Lys Asp Leu Gln Glu  
 80 85 90

aag atc agt ggg aag atg act ctg aag gag ttt gcc ata atg aat gag 334  
 Lys Ile Ser Gly Lys Met Thr Leu Lys Glu Phe Ala Ile Met Asn Glu  
 95 100 105 110

gac caa gat gat gaa gag ttt ctg cag cag tac cgg aag cag cga atg 382  
 Asp Gln Asp Asp Glu Glu Phe Leu Gln Gln Tyr Arg Lys Gln Arg Met

115	120	125	
gaa gag atg cgg cag cag ctt cac aag ggg ccc caa ttc aag cag gtt			430
Glu Glu Met Arg Gln Gln Leu His Lys Gly Pro Gln Phe Lys Gln Val			
130	135	140	
ttt gag atc tcc agt gga gaa ggg ttt tta gac atg att gat aaa gaa			478
Phe Glu Ile Ser Ser Gly Glu Gly Phe Leu Asp Met Ile Asp Lys Glu			
145	150	155	
cag aaa agc att gtc atc atg gtt cat att tat gag gat ggc atc agg			526
Gln Lys Ser Ile Val Ile Met Val His Ile Tyr Glu Asp Gly Ile Arg			
160	165	170	
gac cga agc cat gaa tgg ttg cat gat ccg cct tgc aag ggg ggt gaa			574
Asp Arg Ser His Glu Trp Leu His Asp Pro Pro Cys Lys Gly Gly Glu			
175	180	185	190
ttg atc ggc aat ttt gtt cgt gtt act gac cag ctg ggg gat gat ttc			622
Leu Ile Gly Asn Phe Val Arg Val Thr Asp Gln Leu Gly Asp Asp Phe			
195	200	205	
ttt gct gtg gac ctt gaa gct ttt ctc cag gaa ttt gga tta ctc cca			670
Phe Ala Val Asp Leu Glu Ala Phe Leu Gln Glu Phe Gly Leu Leu Pro			
210	215	220	
gaa aag gaa gtc ttg gtg ctg aca tct gtg cgt aac tct gcc acg tgt			718
Glu Lys Glu Val Leu Val Leu Thr Ser Val Arg Asn Ser Ala Thr Cys			
225	230	235	
cac agt gag gat agc gac ctg gaa ata gat tgaactgata gtctagttgc			768
His Ser Glu Asp Ser Asp Leu Glu Ile Asp			
240	245		
atatagattt ctcattgttt gggttggaat acaccattgt ttatttttgt			818
tcctttgtct tctggctttt cagctgttct ttgtagtccc ttttattatg			868
cataaaataa agaaattctt agatt			893

<210>174

<211>248

<212>PRT

<213> Homo sapiens

<400>174

Met	Thr	Thr	Leu	Tyr	Asp	Lys	Leu	Leu	Gly	Glu	Lys	Leu	Gln	Tyr	Tyr
1							5			10				15	

Tyr	Ser	Ser	Ser	Glu	Asp	Glu	Asp	Ser	Asp	His	Glu	Asp	Lys	Asp	Arg
				20				25					30		

Gly Ile Ser Val Asn Thr Gly Pro Lys Gly Val Ile Asn Asp Trp Arg  
           35                          40                          45  
 Arg Phe Lys Gln Leu Glu Thr Glu Gln Arg Glu Glu Gln Cys Arg Glu  
           50                          55                          60  
 Met Glu Arg Leu Ile Lys Lys Leu Ser Met Thr Cys Arg Ser His Leu  
           65                          70                          75                          80  
 Asp Glu Glu Glu Glu Gln Gln Lys Gln Lys Asp Leu Gln Glu Lys Ile  
                           85                          90                          95  
 Ser Gly Lys Met Thr Leu Lys Glu Phe Ala Ile Met Asn Glu Asp Gln  
                           100                          105                          110  
 Asp Asp Glu Glu Phe Leu Gln Gln Tyr Arg Lys Gln Arg Met Glu Glu  
           115                          120                          125  
 Met Arg Gln Gln Leu His Lys Gly Pro Gln Phe Lys Gln Val Phe Glu  
           130                          135                          140  
 Ile Ser Ser Gly Glu Gly Phe Leu Asp Met Ile Asp Lys Glu Gln Lys  
           145                          150                          155                          160  
 Ser Ile Val Ile Met Val His Ile Tyr Glu Asp Gly Ile Arg Asp Arg  
                           165                          170                          175  
 Ser His Glu Trp Leu His Asp Pro Pro Cys Lys Gly Gly Glu Leu Ile  
                           180                          185                          190  
 Gly Asn Phe Val Arg Val Thr Asp Gln Leu Gly Asp Asp Phe Phe Ala  
           195                          200                          205  
 Val Asp Leu Glu Ala Phe Leu Gln Glu Phe Gly Leu Leu Pro Glu Lys  
           210                          215                          220  
 Glu Val Leu Val Leu Thr Ser Val Arg Asn Ser Ala Thr Cys His Ser  
           225                          230                          235                          240  
 Glu Asp Ser Asp Leu Glu Ile Asp  
                           245

<210>175

<211>891

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(5)..(851)

<400>175

cacc atg acc acc ctg tat gat aag ttg ctg ggg gag aaa ctg cag 46

Met Thr Thr Leu Tyr Asp Lys Leu Leu Gly Glu Lys Leu Gln

1

5

10

tac tac tat agc agc agt gaa gat gag gac agt gac cac gag gac aag 94



Tyr Tyr Tyr Ser Ser Ser Glu Asp Glu Asp Ser Asp His Glu Asp Lys	
15 20 25 30	
gac cga ggc atc tca gtt aac aca ggc cca aaa ggt gtg atc aat gac	142
Asp Arg Gly Ile Ser Val Asn Thr Gly Pro Lys Gly Val Ile Asn Asp	
35 40 45	
tgg cgc cgc ttc aag cag ttg gag aca gag cag agg gag gag cag tgc	190
Trp Arg Arg Phe Lys Gln Leu Glu Thr Glu Gln Arg Glu Glu Gln Cys	
50 55 60	
cgg gag atg gaa agg ctg atc aag aag ctg tca atg act tgc agg tcc	238
Arg Glu Met Glu Arg Leu Ile Lys Lys Leu Ser Met Thr Cys Arg Ser	
65 70 75	
cat ctg gat gaa gag gag gag caa cag aaa cag aaa gac ctc cag gag	286
His Leu Asp Glu Glu Glu Glu Gln Gln Lys Gln Lys Asp Leu Gln Glu	
80 85 90	
aag atc agt ggg aag atg act ctg aag gag ttt gcc ata atg aat gag	334
Lys Ile Ser Gly Lys Met Thr Leu Lys Glu Phe Ala Ile Met Asn Glu	
95 100 105 110	
gac caa gat gat gaa gag ttt ctg cag cag tac cgg aag cag cga atg	382
Asp Gln Asp Asp Glu Glu Phe Leu Gln Gln Tyr Arg Lys Gln Arg Met	
115 120 125	
gaa gag atg cgg cag cag ctt cac aag ggg ccc caa ttc aag cag gtt	430
Glu Glu Met Arg Gln Gln Leu His Lys Gly Pro Gln Phe Lys Gln Val	
130 135 140	
ttt gag atc tcc agt gga gaa ggg ttt tta gac atg att gat aaa gaa	478
Phe Glu Ile Ser Ser Gly Glu Gly Phe Leu Asp Met Ile Asp Lys Glu	
145 150 155	
cag aaa agc att gtc atc atg gtt cat att tat gag gat ggc att cca	526
Gln Lys Ser Ile Val Ile Met Val His Ile Tyr Glu Asp Gly Ile Pro	
160 165 170	
ggg acc gaa gcc atg aat ggt tgc atg atc cgc ctt gcc gca gag tac	574
Gly Thr Glu Ala Met Asn Gly Cys Met Ile Arg Leu Ala Ala Glu Tyr	
175 180 185 190	
cca gct gtc aag ttc tgc aag gtg aag agc tca gtt att ggc gcc agc	622
Pro Ala Val Lys Phe Cys Lys Val Lys Ser Ser Val Ile Gly Ala Ser	
195 200 205	
agt cag ttc acc agg aat gcc ctt cct gcc ctg ctg atc tat aag ggg	670
Ser Gln Phe Thr Arg Asn Ala Leu Pro Ala Leu Leu Ile Tyr Lys Gly	
210 215 220	
ggg gaa ttg atc ggc aat ttt gtt cgt gtt act gac cag ctg ggg gat	718
Gly Glu Leu Ile Gly Asn Phe Val Arg Val Thr Asp Gln Leu Gly Asp	
225 230 235	
gat ttc ttt gct gtg gac ctt gaa gct ttt ctc cag gaa ttt gga tta	766
Asp Phe Phe Ala Val Asp Leu Glu Ala Phe Leu Gln Glu Phe Gly Leu	

240                      245                      250  
 ctc cca gaa aag gaa gtc ttg gtg ctg aca tct gtg cgt aac tct gcc 814  
 Leu Pro Glu Lys Glu Val Leu Val Leu Thr Ser Val Arg Asn Ser Ala  
 255                      260                      265                      270  
 acg tgt cac agt gag gat agc gac ctg gaa ata gat tgaactgata 860  
 Thr Cys His Ser Glu Asp Ser Asp Leu Glu Ile Asp  
 275                      280  
 gtctagttgc atagatttct cattgtttgg g 891

<210>176  
 <211>282  
 <212>PRT  
 <213> Homo sapiens

<400>176  
 Met Thr Thr Leu Tyr Asp Lys Leu Leu Gly Glu Lys Leu Gln Tyr Tyr  
 1                      5                      10                      15  
 Tyr Ser Ser Ser Glu Asp Glu Asp Ser Asp His Glu Asp Lys Asp Arg  
 20                      25                      30  
 Gly Ile Ser Val Asn Thr Gly Pro Lys Gly Val Ile Asn Asp Trp Arg  
 35                      40                      45  
 Arg Phe Lys Gln Leu Glu Thr Glu Gln Arg Glu Glu Gln Cys Arg Glu  
 50                      55                      60  
 Met Glu Arg Leu Ile Lys Lys Leu Ser Met Thr Cys Arg Ser His Leu  
 65                      70                      75                      80  
 Asp Glu Glu Glu Glu Gln Gln Lys Gln Lys Asp Leu Gln Glu Lys Ile  
 85                      90                      95  
 Ser Gly Lys Met Thr Leu Lys Glu Phe Ala Ile Met Asn Glu Asp Gln  
 100                      105                      110  
 Asp Asp Glu Glu Phe Leu Gln Gln Tyr Arg Lys Gln Arg Met Glu Glu  
 115                      120                      125  
 Met Arg Gln Gln Leu His Lys Gly Pro Gln Phe Lys Gln Val Phe Glu  
 130                      135                      140  
 Ile Ser Ser Gly Glu Gly Phe Leu Asp Met Ile Asp Lys Glu Gln Lys  
 145                      150                      155                      160  
 Ser Ile Val Ile Met Val His Ile Tyr Glu Asp Gly Ile Pro Gly Thr  
 165                      170                      175  
 Glu Ala Met Asn Gly Cys Met Ile Arg Leu Ala Ala Glu Tyr Pro Ala  
 180                      185                      190  
 Val Lys Phe Cys Lys Val Lys Ser Ser Val Ile Gly Ala Ser Ser Gln

195	200	205	
Phe Thr Arg Asn Ala Leu Pro Ala Leu Leu Ile Tyr Lys Gly Gly Glu			
210	215	220	
Leu Ile Gly Asn Phe Val Arg Val Thr Asp Gln Leu Gly Asp Asp Phe			
225	230	235	240
Phe Ala Val Asp Leu Glu Ala Phe Leu Gln Glu Phe Gly Leu Leu Pro			
	245	250	255
Glu Lys Glu Val Leu Val Leu Thr Ser Val Arg Asn Ser Ala Thr Cys			
	260	265	270
His Ser Glu Asp Ser Asp Leu Glu Ile Asp			
275	280		
<210>177			
<211>756			
<212>DNA			
<213> Homo sapiens			
<220>			
<221> CDS			
<222>(2)..(719)			
<400>177			
g gat ccc aat gaa gat aca gaa tgg aat gac att tta aga gat ttc			46
Asp Pro Asn Glu Asp Thr Glu Trp Asn Asp Ile Leu Arg Asp Phe			
1	5	10	15
ggc att ctt cct cct aaa gaa gag tca aaa gat gaa att gaa gaa atg			94
Gly Ile Leu Pro Pro Lys Glu Glu Ser Lys Asp Glu Ile Glu Glu Met			
	20	25	30
gtt tta cgt tta cag aaa gaa gca atg gtg aaa cca ttt gaa aag atg			142
Val Leu Arg Leu Gln Lys Glu Ala Met Val Lys Pro Phe Glu Lys Met			
	35	40	45
act ctt gca cag cta aag gaa gct gaa gat gaa ttc gat gaa gaa gat			190
Thr Leu Ala Gln Leu Lys Glu Ala Glu Asp Glu Phe Asp Glu Glu Asp			
	50	55	60
atg cag gct gtt gaa aca tat aga aag aag cgg tta cag gaa tgg aaa			238
Met Gln Ala Val Glu Thr Tyr Arg Lys Lys Arg Leu Gln Glu Trp Lys			
	65	70	75
gct ctt aag aaa aaa caa aaa ttt gga gaa tta aga gaa att tct gga			286
Ala Leu Lys Lys Lys Gln Lys Phe Gly Glu Leu Arg Glu Ile Ser Gly			
	80	85	90
aat cag tat gtg aat gaa gtc aca aat gca gaa gaa gat gtg tgg gtt			334
Asn Gln Tyr Val Asn Glu Val Thr Asn Ala Glu Glu Asp Val Trp Val			
	100	105	110
ata att cat cta tac aga tca agc atc cca atg tgt ttg ttg gtt aac			382
Ile Ile His Leu Tyr Arg Ser Ser Ile Pro Met Cys Leu Leu Val Asn			
	115	120	125

cag cat ctt agt ctt cta gca aga aag ttt cca gaa act aaa ttt gtt 430  
 Gln His Leu Ser Leu Leu Ala Arg Lys Phe Pro Glu Thr Lys Phe Val  
 130 135 140  
 aaa gcc atc gtg aat agc tgt att caa cac tac cat gac aat tgt tta 478  
 Lys Ala Ile Val Asn Ser Cys Ile Gln His Tyr His Asp Asn Cys Leu  
 145 150 155  
 cca aca att ttt gtg tat aaa aat ggt cag ata gaa gcc aaa ttc att 526  
 Pro Thr Ile Phe Val Tyr Lys Asn Gly Gln Ile Glu Ala Lys Phe Ile  
 160 165 170 175  
 gga att ata gaa tgt gga ggg ata aat ctc aag ctg gaa gaa ctt gaa 574  
 Gly Ile Ile Glu Cys Gly Gly Ile Asn Leu Lys Leu Glu Glu Leu Glu  
 180 185 190  
 tgg aag cta gca gaa gtt gga gca ata cag act gat ttg gaa gaa aac 622  
 Trp Lys Leu Ala Glu Val Gly Ala Ile Gln Thr Asp Leu Glu Glu Asn  
 195 200 205  
 ccc aga aaa gac atg gta gat atg atg gta tct tca att aga aac act 670  
 Pro Arg Lys Asp Met Val Asp Met Met Val Ser Ser Ile Arg Asn Thr  
 210 215 220  
 tct att cat gat gac agt gat agc tcc aac agt gat aat gat acc aaa 718  
 Ser Ile His Asp Asp Ser Asp Ser Ser Asn Ser Asp Asn Asp Thr Lys  
 225 230 235  
 tagagagaaa tattcaataa atagctttta gtaaaaaa 756

<210>178  
 <211>239  
 <212>PRT  
 <213> Homo sapiens

<400>178  
 Asp Pro Asn Glu Asp Thr Glu Trp Asn Asp Ile Leu Arg Asp Phe Gly  
 1 5 10 15  
 Ile Leu Pro Pro Lys Glu Glu Ser Lys Asp Glu Ile Glu Glu Met Val  
 20 25 30  
 Leu Arg Leu Gln Lys Glu Ala Met Val Lys Pro Phe Glu Lys Met Thr  
 35 40 45  
 Leu Ala Gln Leu Lys Glu Ala Glu Asp Glu Phe Asp Glu Glu Asp Met  
 50 55 60  
 Gln Ala Val Glu Thr Tyr Arg Lys Lys Arg Leu Gln Glu Trp Lys Ala  
 65 70 75 80  
 Leu Lys Lys Lys Gln Lys Phe Gly Glu Leu Arg Glu Ile Ser Gly Asn  
 85 90 95

Gln Tyr Val Asn Glu Val Thr Asn Ala Glu Glu Asp Val Trp Val Ile  
                   100                                  105                                  110  
 Ile His Leu Tyr Arg Ser Ser Ile Pro Met Cys Leu Leu Val Asn Gln  
                   115                                  120                                  125  
 His Leu Ser Leu Leu Ala Arg Lys Phe Pro Glu Thr Lys Phe Val Lys  
                   130                                  135                                  140  
 Ala Ile Val Asn Ser Cys Ile Gln His Tyr His Asp Asn Cys Leu Pro  
                   145                                  150                                  155                                  160  
 Thr Ile Phe Val Tyr Lys Asn Gly Gln Ile Glu Ala Lys Phe Ile Gly  
                   165                                  170                                  175  
 Ile Ile Glu Cys Gly Gly Ile Asn Leu Lys Leu Glu Glu Leu Glu Trp  
                   180                                  185                                  190  
 Lys Leu Ala Glu Val Gly Ala Ile Gln Thr Asp Leu Glu Glu Asn Pro  
                   195                                  200                                  205  
 Arg Lys Asp Met Val Asp Met Met Val Ser Ser Ile Arg Asn Thr Ser  
                   210                                  215                                  220  
 Ile His Asp Asp Ser Asp Ser Ser Asn Ser Asp Asn Asp Thr Lys  
                   225                                  230                                  235

<210>179

<211>745

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(22)..(742)

<400>179

ggatcccaat gaagatacag a atg gat ccc aat gaa gat aca gaa tgg aat 51  
                                   Met Asp Pro Asn Glu Asp Thr Glu Trp Asn  
   1                                  5                                  10  
 gac att tta aga gat ttc ggc att ctt cct cct aaa gaa gag tca aaa 99  
 Asp Ile Leu Arg Asp Phe Gly Ile Leu Pro Pro Lys Glu Glu Ser Lys  
                                   15                                  20                                  25  
 gat gaa att gaa gaa atg gtt tta cgt tta cag aaa gaa gca atg gtg 147  
 Asp Glu Ile Glu Glu Met Val Leu Arg Leu Gln Lys Glu Ala Met Val  
                                   30                                  35                                  40  
 aaa cca ttt gaa aag atg act ctt gca cag cta aag gaa gct gaa gat 195  
 Lys Pro Phe Glu Lys Met Thr Leu Ala Gln Leu Lys Glu Ala Glu Asp  
                                   45                                  50                                  55  
 gaa ttt gat gaa gaa gat atg cag gct gtt gaa aca tat aga aag aag 243  
 Glu Phe Asp Glu Glu Asp Met Gln Ala Val Glu Thr Tyr Arg Lys Lys  
                                   60                                  65                                  70  
 cgg tta cag gaa tgg aaa gct ctt aag aaa aaa caa aaa ttt gga gaa 291

Arg Leu Gln Glu Trp Lys Ala Leu Lys Lys Lys Gln Lys Phe Gly Glu  
 75 80 85 90

tta aga gaa att tct gga aat cag tat gtg aat gaa gtc aca aat gca 339  
 Leu Arg Glu Ile Ser Gly Asn Gln Tyr Val Asn Glu Val Thr Asn Ala  
 95 100 105

gaa gaa gat gtg tgg gtt ata att cat cta tac aga tca agc atc cca 387  
 Glu Glu Asp Val Trp Val Ile Ile His Leu Tyr Arg Ser Ser Ile Pro  
 110 115 120

atg tgt ttg ttg gtt aac cag cat ctt agt ctt cta gca aga aag ttt 435  
 Met Cys Leu Leu Val Asn Gln His Leu Ser Leu Leu Ala Arg Lys Phe  
 125 130 135

cca gaa act aaa ttt gtt aaa gcc atc gtg aat agc tgt att caa cac 483  
 Pro Glu Thr Lys Phe Val Lys Ala Ile Val Asn Ser Cys Ile Gln His  
 140 145 150

tac cat gac aat tgt tta cca aca att ttt gtg tat aaa aat ggt cag 531  
 Tyr His Asp Asn Cys Leu Pro Thr Ile Phe Val Tyr Lys Asn Gly Gln  
 155 160 165 170

ata gaa gcc aaa ttc att gga att ata gaa tgt gga ggg ata aat ctc 579  
 Ile Glu Ala Lys Phe Ile Gly Ile Ile Glu Cys Gly Gly Ile Asn Leu  
 175 180 185

aag ctg gaa gaa ctt gaa tgg aag cta gca gaa gtt gga gca ata cag 627  
 Lys Leu Glu Glu Leu Glu Trp Lys Leu Ala Glu Val Gly Ala Ile Gln  
 190 195 200

act gat ttg gaa gaa aac ccc aga aaa gac atg gta gat atg atg gta 675  
 Thr Asp Leu Glu Glu Asn Pro Arg Lys Asp Met Val Asp Met Met Val  
 205 210 215

tct tca att aga aac act tct atc cat gat gac agt gat agc tcc aac 723  
 Ser Ser Ile Arg Asn Thr Ser Ile His Asp Asp Ser Asp Ser Ser Asn  
 220 225 230

agt gat aat gat acc aaa taga 745  
 Ser Asp Asn Asp Thr Lys  
 235 240

<210>180  
 <211>240  
 <212>PRT  
 <213> Homo sapiens

<400>180  
 Met Asp Pro Asn Glu Asp Thr Glu Trp Asn Asp Ile Leu Arg Asp Phe  
 1 5 10 15

Gly Ile Leu Pro Pro Lys Glu Glu Ser Lys Asp Glu Ile Glu Glu Met  
 20 25 30

Val Leu Arg Leu Gln Lys Glu Ala Met Val Lys Pro Phe Glu Lys Met  
 35 40 45

Thr Leu Ala Gln Leu Lys Glu Ala Glu Asp Glu Phe Asp Glu Glu Asp  
 50 55 60  
 Met Gln Ala Val Glu Thr Tyr Arg Lys Lys Arg Leu Gln Glu Trp Lys  
 65 70 75 80  
 Ala Leu Lys Lys Lys Gln Lys Phe Gly Glu Leu Arg Glu Ile Ser Gly  
 85 90 95  
 Asn Gln Tyr Val Asn Glu Val Thr Asn Ala Glu Glu Asp Val Trp Val  
 100 105 110  
 Ile Ile His Leu Tyr Arg Ser Ser Ile Pro Met Cys Leu Leu Val Asn  
 115 120 125  
 Gln His Leu Ser Leu Leu Ala Arg Lys Phe Pro Glu Thr Lys Phe Val  
 130 135 140  
 Lys Ala Ile Val Asn Ser Cys Ile Gln His Tyr His Asp Asn Cys Leu  
 145 150 155 160  
 Pro Thr Ile Phe Val Tyr Lys Asn Gly Gln Ile Glu Ala Lys Phe Ile  
 165 170 175  
 Gly Ile Ile Glu Cys Gly Gly Ile Asn Leu Lys Leu Glu Glu Leu Glu  
 180 185 190  
 Trp Lys Leu Ala Glu Val Gly Ala Ile Gln Thr Asp Leu Glu Glu Asn  
 195 200 205  
 Pro Arg Lys Asp Met Val Asp Met Met Val Ser Ser Ile Arg Asn Thr  
 210 215 220  
 Ser Ile His Asp Asp Ser Asp Ser Ser Asn Ser Asp Asn Asp Thr Lys  
 225 230 235 240

<210>181

<211>981

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(1)..(895)

<400>181

gcc acc gcg ccc agc tgg ctt ttg ttt ttt atc ctt ctg ctc ctc att 48  
 Ala Thr Ala Pro Ser Trp Leu Leu Phe Phe Ile Leu Leu Leu Leu Ile  
 1 5 10 15

tac cta ttc acc atc att ggt agt ctt atg gtg ttc ttt gcc atc aaa 96  
 Tyr Leu Phe Thr Ile Ile Gly Ser Leu Met Val Phe Phe Ala Ile Lys  
 20 25 30

ctg gat ttc tgc ctg cac agc tcc ttc tat ttc ttc atc agt gtc ctc 144  
 Leu Asp Phe Cys Leu His Ser Ser Phe Tyr Phe Phe Ile Ser Val Leu  
 35 40 45

tcc ttc cta gag atc tgg tat acc acc atc acc atc ccc aag atg ttc	192
Ser Phe Leu Glu Ile Trp Tyr Thr Thr Ile Thr Ile Pro Lys Met Phe	
50 55 60	
tcc aac cta gcc agt gag cag aag acc acc tcc ctg gat ggt tgc cta	240
Phe Asn Leu Ala Ser Glu Gln Lys Thr Thr Ser Leu Asp Gly Cys Leu	
65 70 75 80	
ttg cag atg tat ttc ttt tac tcc ctc ggc atc act gag gtt tgc ttg	288
Leu Gln Met Tyr Phe Phe Tyr Ser Leu Gly Ile Thr Glu Val Cys Leu	
85 90 95	
ctc acc acc agg gct atg gac aga tac ctg gcc atc tgt aat cac ctt	336
Leu Thr Thr Arg Ala Met Asp Arg Tyr Leu Ala Ile Cys Asn His Leu	
100 105 110	
tgc tac ccc aca gtc acg aca cct cag ctc tac act cag gtg att cta	384
Cys Tyr Pro Thr Val Thr Thr Pro Gln Leu Tyr Thr Gln Val Ile Leu	
115 120 125	
ggg tgt tgc atc tgt ggc ttc ttc acg ctg ctc cct gag att gct tgg	432
Gly Cys Cys Ile Cys Gly Phe Phe Thr Leu Leu Pro Glu Ile Ala Trp	
130 135 140	
ata tcc aca ctg cca ttt tgt ggt cca aat caa atc cac aac att ttc	480
Ile Ser Thr Leu Pro Phe Cys Gly Pro Asn Gln Ile His Asn Ile Phe	
145 150 155 160	
tgt gac ctt gat cct atc ctg aat cta gca tgt gta gac act ggc cca	528
Cys Asp Leu Asp Pro Ile Leu Asn Leu Ala Cys Val Asp Thr Gly Pro	
165 170 175	
gtt gtt tta atc aag gtt gtg gac att gta cat gct gtg gag atc atc	576
Val Val Leu Ile Lys Val Val Asp Ile Val His Ala Val Glu Ile Ile	
180 185 190	
aca gct ata atg ctt gtg act ttg gct tac gtc caa att att gca gtg	624
Thr Ala Ile Met Leu Val Thr Leu Ala Tyr Val Gln Ile Ile Ala Val	
195 200 205	
atc cta aga aac tgc tct gct gat gga tgc caa aag gca ttt tct acc	672
Ile Leu Arg Asn Cys Ser Ala Asp Gly Cys Gln Lys Ala Phe Ser Thr	
210 215 220	
tat gct ttc cac ctt gct att ttc tta atc ttt ttt gga agt gta gcc	720
Tyr Ala Phe His Leu Ala Ile Phe Leu Ile Phe Phe Gly Ser Val Ala	
225 230 235 240	
ctg atg tac ctg ctc ttc tct gcc aag tac tcc ttt ttc tgg gac aca	768
Leu Met Tyr Leu Leu Phe Ser Ala Lys Tyr Ser Phe Phe Trp Asp Thr	
245 250 255	
acc atc agc cta atg ttt gca gtg ctg tca ccg aca aca atc atc tgt	816
Thr Ile Ser Leu Met Phe Ala Val Leu Ser Pro Thr Thr Ile Ile Cys	
260 265 270	



agt ctg agg aat aaa gag ata aag gaa gca ata aaa aag cac atg tgc 864  
 Ser Leu Arg Asn Lys Glu Ile Lys Glu Ala Ile Lys Lys His Met Cys  
 275 280 285  
  
 caa tca atg ata tgc aca cat cat gtc aaa taagaccaaa tacacacctc 914  
 Gln Ser Met Ile Cys Thr His His Val Lys  
 290 295  
  
 ttaattacca aagaatattt atacaaatat ttacattaat acgttcagtg 964  
  
  
 tgtttgttg tgctgtg 981

<210>182  
 <211>298  
 <212>PRT  
 <213> Homo sapiens

<400>182  
 Ala Thr Ala Pro Ser Trp Leu Leu Phe Phe Ile Leu Leu Leu Ile  
 1 5 10 15  
 Tyr Leu Phe Thr Ile Ile Gly Ser Leu Met Val Phe Phe Ala Ile Lys  
 20 25 30  
 Leu Asp Phe Cys Leu His Ser Ser Phe Tyr Phe Phe Ile Ser Val Leu  
 35 40 45  
 Ser Phe Leu Glu Ile Trp Tyr Thr Thr Ile Thr Ile Pro Lys Met Phe  
 50 55 60  
 Phe Asn Leu Ala Ser Glu Gln Lys Thr Thr Ser Leu Asp Gly Cys Leu  
 65 70 75 80  
 Leu Gln Met Tyr Phe Phe Tyr Ser Leu Gly Ile Thr Glu Val Cys Leu  
 85 90 95  
 Leu Thr Thr Arg Ala Met Asp Arg Tyr Leu Ala Ile Cys Asn His Leu  
 100 105 110  
 Cys Tyr Pro Thr Val Thr Thr Pro Gln Leu Tyr Thr Gln Val Ile Leu  
 115 120 125  
 Gly Cys Cys Ile Cys Gly Phe Phe Thr Leu Leu Pro Glu Ile Ala Trp  
 130 135 140  
 Ile Ser Thr Leu Pro Phe Cys Gly Pro Asn Gln Ile His Asn Ile Phe  
 145 150 155 160  
 Cys Asp Leu Asp Pro Ile Leu Asn Leu Ala Cys Val Asp Thr Gly Pro  
 165 170 175  
 Val Val Leu Ile Lys Val Val Asp Ile Val His Ala Val Glu Ile Ile  
 180 185 190

Thr Ala Ile Met Leu Val Thr Leu Ala Tyr Val Gln Ile Ile Ala Val  
 195 200 205  
 Ile Leu Arg Asn Cys Ser Ala Asp Gly Cys Gln Lys Ala Phe Ser Thr  
 210 215 220  
 Tyr Ala Phe His Leu Ala Ile Phe Leu Ile Phe Phe Gly Ser Val Ala  
 225 230 235 240  
 Leu Met Tyr Leu Leu Phe Ser Ala Lys Tyr Ser Phe Phe Trp Asp Thr  
 245 250 255  
 Thr Ile Ser Leu Met Phe Ala Val Leu Ser Pro Thr Thr Ile Ile Cys  
 260 265 270  
 Ser Leu Arg Asn Lys Glu Ile Lys Glu Ala Ile Lys Lys His Met Cys  
 275 280 285  
 Gln Ser Met Ile Cys Thr His His Val Lys  
 290 295

<210>183

<211>1201

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(121)..(1111)

<400>183

aggataactt tatatgttgc aaaatgactc acatagtata ttttatttaa 50  
  
 ccagcctaata ttcaaggctg tttagtgtgct tgaaaagaag gtttttattt 100  
  
 gttcttttgca tgtacttaga atg ctg act gtg ttt tat gag cca aca agt 150  
 Met Leu Thr Val Phe Tyr Glu Pro Thr Ser  
 5 10  
 gaa acc gct gaa aat atg gat cca gag aat cag aca atg gtg act gag 198  
 Glu Thr Ala Glu Asn Met Asp Pro Glu Asn Gln Thr Met Val Thr Glu  
 15 20 25  
 ttt tat ttc tct gat ttt cct caa tct aag aat ggc agc ctc tta ttc 246  
 Phe Tyr Phe Ser Asp Phe Pro Gln Ser Lys Asn Gly Ser Leu Leu Phe  
 30 35 40  
 ttc att cct atg ctc ttt att tat ata ttc att ctt gtt gga aat ttc 294  
 Phe Ile Pro Met Leu Phe Ile Tyr Ile Phe Ile Leu Val Gly Asn Phe  
 45 50 55  
 atg att ttc ttt gct gtc cga ccg gac ccc cat ctc cat aat cct atg 342  
 Met Ile Phe Phe Ala Val Arg Pro Asp Pro His Leu His Asn Pro Met

60	65	70	
tac agt ttt atc agt gtc ttc tcc ttc ctg gag att tgg tac acc acc			390
Tyr Ser Phe Ile Ser Val Phe Ser Phe Leu Glu Ile Trp Tyr Thr Thr			
75	80	85	90
gtg act atc ccc aag atg ctc tcc aac ctt ctc agt gaa cag aaa acc			438
Val Thr Ile Pro Lys Met Leu Ser Asn Leu Leu Ser Glu Gln Lys Thr			
	95	100	105
atc tct ttc ata ggt tgc ctc ctg cag atg tac ttc ttc cac tca ctc			486
Ile Ser Phe Ile Gly Cys Leu Leu Gln Met Tyr Phe Phe His Ser Leu			
	110	115	120
ggg gtc aca gaa gcc cta gtc ctc aca gtg atg gcc att gac agg tgt			534
Gly Val Thr Glu Ala Leu Val Leu Thr Val Met Ala Ile Asp Arg Cys			
	125	130	135
gta gcc atc tgc aac ccc ctt cgc tat gca atc act atg tcc cct aga			582
Val Ala Ile Cys Asn Pro Leu Arg Tyr Ala Ile Thr Met Ser Pro Arg			
	140	145	150
ctg tgc atc cag ctc tcc act ggc tct tgc att ttt ggc ttc ctc atg			630
Leu Cys Ile Gln Leu Ser Thr Gly Ser Cys Ile Phe Gly Phe Leu Met			
155	160	165	170
tta ctg cca gag att gtg tgc att tcc act ctt cca ttc tgt ggc gcc			678
Leu Leu Pro Glu Ile Val Cys Ile Ser Thr Leu Pro Phe Cys Gly Ala			
	175	180	185
aac caa att cat caa ctc ttt tgt gac ttt gaa cct gtg ctg cag tta			726
Asn Gln Ile His Gln Leu Phe Cys Asp Phe Glu Pro Val Leu Gln Leu			
	190	195	200
gcc tgc aca gat acg tac ata att ctg gtt gaa gat gtg atc cgt gct			774
Ala Cys Thr Asp Thr Tyr Ile Ile Leu Val Glu Asp Val Ile Arg Ala			
	205	210	215
att tcc att ctg acc tct gtc tct gtc atc acc ctt ttc tat tta aga			822
Ile Ser Ile Leu Thr Ser Val Ser Val Ile Thr Leu Phe Tyr Leu Arg			
220	225	230	
atc atc acg gtg atc ctg agg att ccc tct ggt gag agt cgt cag aag			870
Ile Ile Thr Val Ile Leu Arg Ile Pro Ser Gly Glu Ser Arg Gln Lys			
235	240	245	250
gct ttc ttc aca tgt gca gcc cac att gct att ttc ttg ctg ttt ttt			918
Ala Phe Phe Thr Cys Ala Ala His Ile Ala Ile Phe Leu Leu Phe Phe			
	255	260	265
ggc agt gtg tca ctc atg tat ctg cgc ttc tct gtc aca ttc cca cca			966
Gly Ser Val Ser Leu Met Tyr Leu Arg Phe Ser Val Thr Phe Pro Pro			
	270	275	280
tta ctg gac aag gcc att gca ctg atg ttt gct gtc ctt gcc cta ctt			1014
Leu Leu Asp Lys Ala Ile Ala Leu Met Phe Ala Val Leu Ala Leu Leu			
285	290	295	

ttc aac cca gta atc tat agt ctg agg aac aaa gat atg aaa aac gcc 1062  
Phe Asn Pro Val Ile Tyr Ser Leu Arg Asn Lys Asp Met Lys Asn Ala  
300 305 310

acc aag aaa atc ctc tgt tct caa aag atg ttc aat gcc tct ggg agc 1110  
Thr Lys Lys Ile Leu Cys Ser Gln Lys Met Phe Asn Ala Ser Gly Ser  
315 320 325 330

taatggagtt cacacacacc tcttcaaaga aatctcatca tctccttaag 1160

tttaaaatgc taacaaatca gtttttttaa attaccatgc a 1201

<210>184

<211>330

<212>PRT

<213> Homo sapiens

<400>184

Met Leu Thr Val Phe Tyr Glu Pro Thr Ser Glu Thr Ala Glu Asn Met  
1 5 10 15

Asp Pro Glu Asn Gln Thr Met Val Thr Glu Phe Tyr Phe Ser Asp Phe  
20 25 30

Pro Gln Ser Lys Asn Gly Ser Leu Leu Phe Phe Ile Pro Met Leu Phe  
35 40 45

Ile Tyr Ile Phe Ile Leu Val Gly Asn Phe Met Ile Phe Phe Ala Val  
50 55 60

Arg Pro Asp Pro His Leu His Asn Pro Met Tyr Ser Phe Ile Ser Val  
65 70 75 80

Phe Ser Phe Leu Glu Ile Trp Tyr Thr Thr Val Thr Ile Pro Lys Met  
85 90 95

Leu Ser Asn Leu Leu Ser Glu Gln Lys Thr Ile Ser Phe Ile Gly Cys  
100 105 110

Leu Leu Gln Met Tyr Phe Phe His Ser Leu Gly Val Thr Glu Ala Leu  
115 120 125

Val Leu Thr Val Met Ala Ile Asp Arg Cys Val Ala Ile Cys Asn Pro  
130 135 140

Leu Arg Tyr Ala Ile Thr Met Ser Pro Arg Leu Cys Ile Gln Leu Ser  
145 150 155 160

Thr Gly Ser Cys Ile Phe Gly Phe Leu Met Leu Leu Pro Glu Ile Val  
165 170 175

Cys Ile Ser Thr Leu Pro Phe Cys Gly Ala Asn Gln Ile His Gln Leu

180	185	190
Phe Cys Asp Phe Glu Pro Val Leu Gln Leu Ala Cys Thr Asp Thr Tyr		
195	200	205
Ile Ile Leu Val Glu Asp Val Ile Arg Ala Ile Ser Ile Leu Thr Ser		
210	215	220
Val Ser Val Ile Thr Leu Phe Tyr Leu Arg Ile Ile Thr Val Ile Leu		
225	230	235 240
Arg Ile Pro Ser Gly Glu Ser Arg Gln Lys Ala Phe Phe Thr Cys Ala		
245	250	255
Ala His Ile Ala Ile Phe Leu Leu Phe Phe Gly Ser Val Ser Leu Met		
260	265	270
Tyr Leu Arg Phe Ser Val Thr Phe Pro Pro Leu Leu Asp Lys Ala Ile		
275	280	285
Ala Leu Met Phe Ala Val Leu Ala Leu Leu Phe Asn Pro Val Ile Tyr		
290	295	300
Ser Leu Arg Asn Lys Asp Met Lys Asn Ala Thr Lys Lys Ile Leu Cys		
305	310	315 320
Ser Gln Lys Met Phe Asn Ala Ser Gly Ser		
325	330	

<210>185

<211>1061

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(41)..(971)

<400>185

caatctggtc ctaagtgatc tttttctttt tcacagggaa atg ggg gaa aat cag	55
Met Gly Glu Asn Gln	
1 5	
aca atg gtc aca gag ttc ctc cta ctg gga ttt ctc ctg ggc cca agg	103
Thr Met Val Thr Glu Phe Leu Leu Leu Gly Phe Leu Leu Gly Pro Arg	
10 15 20	
att cag atg ctc ctc ttt ggg ctc ttc tcc ctg ttc tat atc ttc acc	151
Ile Gln Met Leu Leu Phe Gly Leu Phe Ser Leu Phe Tyr Ile Phe Thr	
25 30 35	
ctg ctg ggg aac ggg gcc atc ctg ggg ctc atc tca ctg gac tcc aga	199
Leu Leu Gly Asn Gly Ala Ile Leu Gly Leu Ile Ser Leu Asp Ser Arg	
40 45 50	
ctc cac acc ccc atg tac ttc ttc ctc tca cac ctg gct gtc gtc gac	247
Leu His Thr Pro Met Tyr Phe Phe Leu Ser His Leu Ala Val Val Asp	
55 60 65	

atc gcc tac acc cgc aac acg gtg ccc cag atg ctg gcg aac ctc ctg	295
Ile Ala Tyr Thr Arg Asn Thr Val Pro Gln Met Leu Ala Asn Leu Leu	
70 75 80 85	
cat cca gcc aag ccc atc tcc ttt gct ggc tgc atg acg cag acc ttt	343
His Pro Ala Lys Pro Ile Ser Phe Ala Gly Cys Met Thr Gln Thr Phe	
90 95 100	
ctc tgt ttg agt ttt gga cac agc gaa tgt ctc ctg ctg gtg ctg atg	391
Leu Cys Leu Ser Phe Gly His Ser Glu Cys Leu Leu Leu Val Leu Met	
105 110 115	
tcc tac gat cgt tac gtg gcc atc tgc cac cct ctc cga tac tcc gtc	439
Ser Tyr Asp Arg Tyr Val Ala Ile Cys His Pro Leu Arg Tyr Ser Val	
120 125 130	
atc atg acc tgg aga gtc tgc atc acc ctg gcc gtc act tcc tgg acg	487
Ile Met Thr Trp Arg Val Cys Ile Thr Leu Ala Val Thr Ser Trp Thr	
135 140 145	
tgt ggc tcc ctc ctg gct ctg gcc cat gtg gtt ctc atc cta aga ctg	535
Cys Gly Ser Leu Leu Ala Leu Ala His Val Val Leu Ile Leu Arg Leu	
150 155 160 165	
ccc ttc tct ggg cct cat gaa atc aac cac ttc ttc tgt gaa atc ctg	583
Pro Phe Ser Gly Pro His Glu Ile Asn His Phe Phe Cys Glu Ile Leu	
170 175 180	
tct gtc ctc agg ctg gcc tgt gct gac acc tgg ctc aac cag gtg gtc	631
Ser Val Leu Arg Leu Ala Cys Ala Asp Thr Trp Leu Asn Gln Val Val	
185 190 195	
atc ttt gca gcc tgc gtg ttc ttc ctg gtg ggg cca ccc agc ctg gtg	679
Ile Phe Ala Ala Cys Val Phe Phe Leu Val Gly Pro Pro Ser Leu Val	
200 205 210	
ctt gtc tcc tac tcg cac atc ctg gcg gcc atc ctg agg atc cag tct	727
Leu Val Ser Tyr Ser His Ile Leu Ala Ala Ile Leu Arg Ile Gln Ser	
215 220 225	
ggg gag ggc cgc aga aag gcc ttc tcc acc tgc tcc tcc cac ctc tgc	775
Gly Glu Gly Arg Arg Lys Ala Phe Ser Thr Cys Ser Ser His Leu Cys	
230 235 240 245	
gtg gtg gga ctc ttc ttt ggc agt gcc atc atc atg tac atg gcc ccc	823
Val Val Gly Leu Phe Phe Gly Ser Ala Ile Ile Met Tyr Met Ala Pro	
250 255 260	
aag tcc cgc cat cct gag gag cag caa aag gtc ttt ttt cta ttt tac	871
Lys Ser Arg His Pro Glu Glu Gln Gln Lys Val Phe Phe Leu Phe Tyr	
265 270 275	
agt ttt ttc aac cca aca ctt aac ccc ctg att tac agc ctg agg aac	919
Ser Phe Phe Asn Pro Thr Leu Asn Pro Leu Ile Tyr Ser Leu Arg Asn	
280 285 290	

gga gag gtc aag ggt gcc ctg agg aga gca ctg ggc aag gaa agt cat 967  
 Gly Glu Val Lys Gly Ala Leu Arg Arg Ala Leu Gly Lys Glu Ser His  
 295 300 305

tcc taactggtgt gacatttgac tctccctcct cagtcacctc ctggaatcct 1020  
 Ser  
 310

ggtaccaaatt accacctaag ttcactactc tcttttatatc a 1061

<210>186  
 <211>310  
 <212>PRT  
 <213> Homo sapiens

<400>186  
 Met Gly Glu Asn Gln Thr Met Val Thr Glu Phe Leu Leu Leu Gly Phe  
 1 5 10 15  
 Leu Leu Gly Pro Arg Ile Gln Met Leu Leu Phe Gly Leu Phe Ser Leu  
 20 25 30  
 Phe Tyr Ile Phe Thr Leu Leu Gly Asn Gly Ala Ile Leu Gly Leu Ile  
 35 40 45  
 Ser Leu Asp Ser Arg Leu His Thr Pro Met Tyr Phe Phe Leu Ser His  
 50 55 60  
 Leu Ala Val Val Asp Ile Ala Tyr Thr Arg Asn Thr Val Pro Gln Met  
 65 70 75 80  
 Leu Ala Asn Leu Leu His Pro Ala Lys Pro Ile Ser Phe Ala Gly Cys  
 85 90 95  
 Met Thr Gln Thr Phe Leu Cys Leu Ser Phe Gly His Ser Glu Cys Leu  
 100 105 110  
 Leu Leu Val Leu Met Ser Tyr Asp Arg Tyr Val Ala Ile Cys His Pro  
 115 120 125  
 Leu Arg Tyr Ser Val Ile Met Thr Trp Arg Val Cys Ile Thr Leu Ala  
 130 135 140  
 Val Thr Ser Trp Thr Cys Gly Ser Leu Leu Ala Leu Ala His Val Val  
 145 150 155 160  
 Leu Ile Leu Arg Leu Pro Phe Ser Gly Pro His Glu Ile Asn His Phe  
 165 170 175  
 Phe Cys Glu Ile Leu Ser Val Leu Arg Leu Ala Cys Ala Asp Thr Trp  
 180 185 190  
 Leu Asn Gln Val Val Ile Phe Ala Ala Cys Val Phe Phe Leu Val Gly  
 195 200 205

Pro Pro Ser Leu Val Leu Val Ser Tyr Ser His Ile Leu Ala Ala Ile  
 210 215 220  
 Leu Arg Ile Gln Ser Gly Glu Gly Arg Arg Lys Ala Phe Ser Thr Cys  
 225 230 235 240  
 Ser Ser His Leu Cys Val Val Gly Leu Phe Phe Gly Ser Ala Ile Ile  
 245 250 255  
 Met Tyr Met Ala Pro Lys Ser Arg His Pro Glu Glu Gln Gln Lys Val  
 260 265 270  
 Phe Phe Leu Phe Tyr Ser Phe Phe Asn Pro Thr Leu Asn Pro Leu Ile  
 275 280 285  
 Tyr Ser Leu Arg Asn Gly Glu Val Lys Gly Ala Leu Arg Arg Ala Leu  
 290 295 300  
 Gly Lys Glu Ser His Ser  
 305 310

<210>187

<211>1201

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(152)..(1112)

<400>187

agttggttgt aaataattct gcttatatta cctacagagt aaacattata 50

gcattatcac tccagaatcc ttgttttcta tggtttccag atgtttccaa 100

tgtctagatg ttccagctgc ccatctctga gaaatccagc tgtgtctcac 150

a atg gat gcc aca gcc tgt aat gaa tca gtg gat ggc tca ccc gtc 196  
 Met Asp Ala Thr Ala Cys Asn Glu Ser Val Asp Gly Ser Pro Val  
 5 10 15

ttc tat cta ttg ggc atc ccc tct ctg cca gag acc ttc ttc ctc cct 244  
 Phe Tyr Leu Leu Gly Ile Pro Ser Leu Pro Glu Thr Phe Phe Leu Pro  
 20 25 30

gtg ttt ttt att ttc ctc ctc ttc tac ctt ctc atc ctg atg ggt aat 292  
 Val Phe Phe Ile Phe Leu Leu Phe Tyr Leu Leu Ile Leu Met Gly Asn  
 35 40 45

gcc ctg atc ctg gtg gcc gtg gtg gca gag ccc agc ctc cac aag ccc 340  
 Ala Leu Ile Leu Val Ala Val Val Ala Glu Pro Ser Leu His Lys Pro  
 50 55 60



atg tac ttc ttt ctg atc aat ctc tcc acc ttg gac atc ctt ttc acc	388
Met Tyr Phe Phe Leu Ile Asn Leu Ser Thr Leu Asp Ile Leu Phe Thr	
65 70 75	
aca acc act gtc ccc aag atg ctg tcc tta ttc ttg ctt ggg gac cgc	436
Thr Thr Thr Val Pro Lys Met Leu Ser Leu Phe Leu Leu Gly Asp Arg	
80 85 90 95	
ttc ctc agc ttt tct tcc tgc tta ctg cag atg tac ctc ttc caa agt	484
Phe Leu Ser Phe Ser Ser Cys Leu Leu Gln Met Tyr Leu Phe Gln Ser	
100 105 110	
ttt aca tgt tca gaa gcc ttc atc ctg gtg gtc atg gcc tat gac cgc	532
Phe Thr Cys Ser Glu Ala Phe Ile Leu Val Val Met Ala Tyr Asp Arg	
115 120 125	
tat gtg gct atc tgc cac cca ctg cac tac cct gtc ctc atg aac cca	580
Tyr Val Ala Ile Cys His Pro Leu His Tyr Pro Val Leu Met Asn Pro	
130 135 140	
cag acc aat gct acc ttg gca gcc agt gcc tgg cta act gcc ctc ctc	628
Gln Thr Asn Ala Thr Leu Ala Ala Ser Ala Trp Leu Thr Ala Leu Leu	
145 150 155	
ctg ccc atc cca gca gta gta agg acc tcc cag atg gca tat aac agc	676
Leu Pro Ile Pro Ala Val Val Arg Thr Ser Gln Met Ala Tyr Asn Ser	
160 165 170 175	
att gcc tac atc tac cac tgc ttc tgt gat cat ctg gct gtg gtc cag	724
Ile Ala Tyr Ile Tyr His Cys Phe Cys Asp His Leu Ala Val Val Gln	
180 185 190	
gcc tcc tgc tct gac acc acc ccc cag acc ctc atg ggc ttc tgc atc	772
Ala Ser Cys Ser Asp Thr Thr Pro Gln Thr Leu Met Gly Phe Cys Ile	
195 200 205	
gcc atg gtg gtg tcc ttc ctc ccc ctt ctc ctg gtg ctt ctc tcc tat	820
Ala Met Val Val Ser Phe Leu Pro Leu Leu Leu Val Leu Leu Ser Tyr	
210 215 220	
gtc cac atc ctg gcc tca gtg ctt cgc atc agt tcc cta gaa gga cgg	868
Val His Ile Leu Ala Ser Val Leu Arg Ile Ser Ser Leu Glu Gly Arg	
225 230 235	
gca aaa gcc ttc tcc acc tgc agc tcc cac ctt ctg gtc gtg ggc acc	916
Ala Lys Ala Phe Ser Thr Cys Ser Ser His Leu Leu Val Val Gly Thr	
240 245 250 255	
tac tac tca tct att gcc ata gcc tac gtg gcc tac agg gct gac ctg	964
Tyr Tyr Ser Ser Ile Ala Ile Ala Tyr Val Ala Tyr Arg Ala Asp Leu	
260 265 270	
ccc ctt gac ttc cat atc atg ggc aat gtg gta tat gcc att ctc aca	1012
Pro Leu Asp Phe His Ile Met Gly Asn Val Val Tyr Ala Ile Leu Thr	
275 280 285	

cca att ctc aac ccc ctc att tac acg ctg aga aac agg gat gta aag 1060  
Pro Ile Leu Asn Pro Leu Ile Tyr Thr Leu Arg Asn Arg Asp Val Lys  
290 295 300

gca gcc atc acc aaa atc atg tct caa gac cca ggc tgt gac agg agc 1108  
Ala Ala Ile Thr Lys Ile Met Ser Gln Asp Pro Gly Cys Asp Arg Ser  
305 310 315

att tgacctttaa atgcagctaa ctctgcttcc aggacaccaa ataacagtgc 1161  
Ile  
320

ttagcacaga gaaaggactc aatacatgat aatgaaataa 1201

<210>188  
<211>320  
<212>PRT  
<213> Homo sapiens

<400>188  
Met Asp Ala Thr Ala Cys Asn Glu Ser Val Asp Gly Ser Pro Val Phe  
1 5 10 15

Tyr Leu Leu Gly Ile Pro Ser Leu Pro Glu Thr Phe Phe Leu Pro Val  
20 25 30

Phe Phe Ile Phe Leu Leu Phe Tyr Leu Leu Ile Leu Met Gly Asn Ala  
35 40 45

Leu Ile Leu Val Ala Val Val Ala Glu Pro Ser Leu His Lys Pro Met  
50 55 60

Tyr Phe Phe Leu Ile Asn Leu Ser Thr Leu Asp Ile Leu Phe Thr Thr  
65 70 75 80

Thr Thr Val Pro Lys Met Leu Ser Leu Phe Leu Leu Gly Asp Arg Phe  
85 90 95

Leu Ser Phe Ser Ser Cys Leu Leu Gln Met Tyr Leu Phe Gln Ser Phe  
100 105 110

Thr Cys Ser Glu Ala Phe Ile Leu Val Val Met Ala Tyr Asp Arg Tyr  
115 120 125

Val Ala Ile Cys His Pro Leu His Tyr Pro Val Leu Met Asn Pro Gln  
130 135 140

Thr Asn Ala Thr Leu Ala Ala Ser Ala Trp Leu Thr Ala Leu Leu Leu  
145 150 155 160

Pro Ile Pro Ala Val Val Arg Thr Ser Gln Met Ala Tyr Asn Ser Ile  
165 170 175

Ala Tyr Ile Tyr His Cys Phe Cys Asp His Leu Ala Val Val Gln Ala  
180 185 190

Ser Cys Ser Asp Thr Thr Pro Gln Thr Leu Met Gly Phe Cys Ile Ala  
195 200 205

Met Val Val Ser Phe Leu Pro Leu Leu Leu Val Leu Leu Ser Tyr Val  
210 215 220

His Ile Leu Ala Ser Val Leu Arg Ile Ser Ser Leu Glu Gly Arg Ala  
225 230 235 240

Lys Ala Phe Ser Thr Cys Ser Ser His Leu Leu Val Val Gly Thr Tyr  
245 250 255

Tyr Ser Ser Ile Ala Ile Ala Tyr Val Ala Tyr Arg Ala Asp Leu Pro  
260 265 270

Leu Asp Phe His Ile Met Gly Asn Val Val Tyr Ala Ile Leu Thr Pro  
275 280 285

Ile Leu Asn Pro Leu Ile Tyr Thr Leu Arg Asn Arg Asp Val Lys Ala  
290 295 300

Ala Ile Thr Lys Ile Met Ser Gln Asp Pro Gly Cys Asp Arg Ser Ile  
305 310 315 320

<210>189

<211>1042

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(45) .. (960)

<400>189

gacctttcat cacactctgg tcatttaca actgttatta agga atg ggg gac 53  
Met Gly Asp

1

aag cag ccc tgg gtc aca gaa ttc atc ctg gtt gga ttc cag ctc agt 101  
Lys Gln Pro Trp Val Thr Glu Phe Ile Leu Val Gly Phe Gln Leu Ser  
5 10 15

gca gag atg gag atc ttt ctc tct tgc atc ttc tcc ctg tta tat ctc 149  
Ala Glu Met Glu Ile Phe Leu Ser Cys Ile Phe Ser Leu Leu Tyr Leu  
20 25 30 35

ttc agt cta ctg agg aat ggc atg aac atg gga ctc atc tgt ctg gat 197  
Phe Ser Leu Leu Arg Asn Gly Met Asn Met Gly Leu Ile Cys Leu Asp  
40 45 50

ccc aga cta cac acc ccc ata tac ttc ttc ctg tca cac ttg gcc gtc 245  
Pro Arg Leu His Thr Pro Ile Tyr Phe Phe Leu Ser His Leu Ala Val  
55 60 65

att gac ata tac tat gct tcc aac aat ttg ctc aac atg ctg gaa aac 293  
Ile Asp Ile Tyr Tyr Ala Ser Asn Asn Leu Leu Asn Met Leu Glu Asn  
70 75 80

cta gtg aaa cac aaa aaa act atc tcg ttc atc tct tgc att atg cag	341
Leu Val Lys His Lys Lys Thr Ile Ser Phe Ile Ser Cys Ile Met Gln	
85 90 95	
atg gct ttg tat ttg act ttt gct gct gca gtg tgc atg att ttg gtg	389
Met Ala Leu Tyr Leu Thr Phe Ala Ala Ala Val Cys Met Ile Leu Val	
100 105 110 115	
gtg atg tcc tat gac aga ttt gtg gcg atc tgc cat ccc ctg cat tac	437
Val Met Ser Tyr Asp Arg Phe Val Ala Ile Cys His Pro Leu His Tyr	
120 125 130	
act gtc atc atg aac tgg aga gtg tgc aca gta ctg gct att act tcc	485
Thr Val Ile Met Asn Trp Arg Val Cys Thr Val Leu Ala Ile Thr Ser	
135 140 145	
tgg gca tgt gga ttt tcc ctg gcc ctc ata aat cta att ctc ctt cta	533
Trp Ala Cys Gly Phe Ser Leu Ala Leu Ile Asn Leu Ile Leu Leu Leu	
150 155 160	
agg ctg ccc ttc tgt ggg ccc cag gag gtg aac cac ttc ttc ggt gaa	581
Arg Leu Pro Phe Cys Gly Pro Gln Glu Val Asn His Phe Phe Gly Glu	
165 170 175	
att ctg tct gtc ctc aaa ctg gcc tgt gca gac acc tgg att aat gaa	629
Ile Leu Ser Val Leu Lys Leu Ala Cys Ala Asp Thr Trp Ile Asn Glu	
180 185 190 195	
att ttt gtc ttt gct ggt ggt gtg ttt gtc tta gtc ggg ccc ctt tcc	677
Ile Phe Val Phe Ala Gly Gly Val Phe Val Leu Val Gly Pro Leu Ser	
200 205 210	
ttg atg ctg atc tcc tac atg cgc atc ctc ttg gcc atc ctg aag atc	725
Leu Met Leu Ile Ser Tyr Met Arg Ile Leu Leu Ala Ile Leu Lys Ile	
215 220 225	
cag tca ggc gag ggc cac aga aag gac ttc tct acc tgc tcc tcc cac	773
Gln Ser Gly Glu Gly His Arg Lys Asp Phe Ser Thr Cys Ser Ser His	
230 235 240	
ctc tgt gtg gtg ggg ttc ttc ttt gcc aac gcc att gtc atg tac atg	821
Leu Cys Val Val Gly Phe Phe Phe Ala Asn Ala Ile Val Met Tyr Met	
245 250 255	
gcc ccc aag tcc cgc cat ccc gag gag cag cag aag gtc ctt tcc ctg	869
Ala Pro Lys Ser Arg His Pro Glu Glu Gln Gln Lys Val Leu Ser Leu	
260 265 270 275	
ttt tgc agc ctt tgg aat cag gtg ctg aac ccc cct ctg atc tac agc	917
Phe Cys Ser Leu Trp Asn Gln Val Leu Asn Pro Pro Leu Ile Tyr Ser	
280 285 290	
ttg agg aat gca gag gtc aag agt gcc cca caa gag ggc cac	959
Leu Arg Asn Ala Glu Val Lys Ser Ala Pro Gln Glu Gly His	
295 300 305	

tgaagaagga gaggtgatg ttacaatctc aaaggcacca cgaggagagg 1009

gcctgctccg acaaatgggg aagttggctt ttt 1042

<210>190  
<211>305  
<212>PRT  
<213> Homo sapiens

<400>190  
Met Gly Asp Lys Gln Pro Trp Val Thr Glu Phe Ile Leu Val Gly Phe  
1 5 10 15  
Gln Leu Ser Ala Glu Met Glu Ile Phe Leu Ser Cys Ile Phe Ser Leu  
20 25 30  
Leu Tyr Leu Phe Ser Leu Leu Arg Asn Gly Met Asn Met Gly Leu Ile  
35 40 45  
Cys Leu Asp Pro Arg Leu His Thr Pro Ile Tyr Phe Phe Leu Ser His  
50 55 60  
Leu Ala Val Ile Asp Ile Tyr Tyr Ala Ser Asn Asn Leu Leu Asn Met  
65 70 75 80  
Leu Glu Asn Leu Val Lys His Lys Lys Thr Ile Ser Phe Ile Ser Cys  
85 90 95  
Ile Met Gln Met Ala Leu Tyr Leu Thr Phe Ala Ala Ala Val Cys Met  
100 105 110  
Ile Leu Val Val Met Ser Tyr Asp Arg Phe Val Ala Ile Cys His Pro  
115 120 125  
Leu His Tyr Thr Val Ile Met Asn Trp Arg Val Cys Thr Val Leu Ala  
130 135 140  
Ile Thr Ser Trp Ala Cys Gly Phe Ser Leu Ala Leu Ile Asn Leu Ile  
145 150 155 160  
Leu Leu Leu Arg Leu Pro Phe Cys Gly Pro Gln Glu Val Asn His Phe  
165 170 175  
Phe Gly Glu Ile Leu Ser Val Leu Lys Leu Ala Cys Ala Asp Thr Trp  
180 185 190  
Ile Asn Glu Ile Phe Val Phe Ala Gly Gly Val Phe Val Leu Val Gly  
195 200 205  
Pro Leu Ser Leu Met Leu Ile Ser Tyr Met Arg Ile Leu Leu Ala Ile  
210 215 220  
Leu Lys Ile Gln Ser Gly Glu Gly His Arg Lys Asp Phe Ser Thr Cys

225		230		235		240
Ser Ser His Leu Cys Val Val Gly Phe Phe Phe Ala Asn Ala Ile Val						
		245		250		255
Met Tyr Met Ala Pro Lys Ser Arg His Pro Glu Glu Gln Gln Lys Val						
	260		265		270	
Leu Ser Leu Phe Cys Ser Leu Trp Asn Gln Val Leu Asn Pro Pro Leu						
	275		280		285	
Ile Tyr Ser Leu Arg Asn Ala Glu Val Lys Ser Ala Pro Gln Glu Gly						
	290		295		300	

His  
305

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<211>973  
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<213> Homo sapiens

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1 5 10	
ttc tct gga ttc cca cag ttt gaa gat ggt agc ctc ctc ttc ttc att	96
Phe Ser Gly Phe Pro Gln Phe Glu Asp Gly Ser Leu Leu Phe Phe Ile	
15 20 25	
cca ttg ttt gtt atc tac ata ttc att gtc att ggg aat ctt att gta	144
Pro Leu Phe Val Ile Tyr Ile Phe Ile Val Ile Gly Asn Leu Ile Val	
30 35 40 45	
ttt ttt gca gtc agg gtg gat acc cgt ctc cac aac ccc atg tat aat	192
Phe Phe Ala Val Arg Val Asp Thr Arg Leu His Asn Pro Met Tyr Asn	
50 55 60	
ttt atc agc att ttc tca ttt ctg gag atc tgg tac aca act gcc aca	240
Phe Ile Ser Ile Phe Ser Phe Leu Glu Ile Trp Tyr Thr Thr Ala Thr	
65 70 75	
att ccc aag atg ctc tcc atc ctc atc agc agg cag agg acc atc tcc	288
Ile Pro Lys Met Leu Ser Ile Leu Ile Ser Arg Gln Arg Thr Ile Ser	
80 85 90	
atg gtt ggt tgc ctc ttg cag atg tac ttc ttc cat tca ctg gga aat	336
Met Val Gly Cys Leu Leu Gln Met Tyr Phe Phe His Ser Leu Gly Asn	
95 100 105	
tca gag ggg att ttg ttg acc acc atg gcc att gat agg tac gtt gcc	384
Ser Glu Gly Ile Leu Leu Thr Thr Met Ala Ile Asp Arg Tyr Val Ala	
110 115 120 125	

atc tgt aac cct ctc cgc tac cca acc atc atg acc ccc ggg ctc tgt	432
Ile Cys Asn Pro Leu Arg Tyr Pro Thr Ile Met Thr Pro Gly Leu Cys	
130 135 140	
gtt cag ctc tct gtg ggg tcc tgc atc ttt ggc ttt ctt gtg ttg ctc	480
Val Gln Leu Ser Val Gly Ser Cys Ile Phe Gly Phe Leu Val Leu Leu	
145 150 155	
cca gag att gca tgg att tcc aca ctg ccc ttc tgt gga ccc aac caa	528
Pro Glu Ile Ala Trp Ile Ser Thr Leu Pro Phe Cys Gly Pro Asn Gln	
160 165 170	
atc cac cag atc ttc tgt gat ttt gaa cct gtg ctg cgc ttg gcc tgt	576
Ile His Gln Ile Phe Cys Asp Phe Glu Pro Val Leu Arg Leu Ala Cys	
175 180 185	
aca gac acg tcc atg att ctg att gag gat gtg atc cat gct gtg gcc	624
Thr Asp Thr Ser Met Ile Leu Ile Glu Asp Val Ile His Ala Val Ala	
190 195 200 205	
att gta ttc tct gtc ctg att att gcc ttt tct tat atc aga atc atc	672
Ile Val Phe Ser Val Leu Ile Ile Ala Phe Ser Tyr Ile Arg Ile Ile	
210 215 220	
act gta atc ctg agg att ccc tct gtt gaa ggc cgc cag aag gcc ttt	720
Thr Val Ile Leu Arg Ile Pro Ser Val Glu Gly Arg Gln Lys Ala Phe	
225 230 235	
tct acc tgt gcc gcc cat ctt agt gtc ttt ctg atg ttc tat ggc agt	768
Ser Thr Cys Ala Ala His Leu Ser Val Phe Leu Met Phe Tyr Gly Ser	
240 245 250	
gta tcc ctc atg tac ctg cgt ttc tct gcc act ttc cca ccg att ttg	816
Val Ser Leu Met Tyr Leu Arg Phe Ser Ala Thr Phe Pro Pro Ile Leu	
255 260 265	
gac aca gct gtt gca ctg atg ttt gca gtt ctt gct ccc ttt ttc aac	864
Asp Thr Ala Val Ala Leu Met Phe Ala Val Leu Ala Pro Phe Phe Asn	
270 275 280 285	
cct atc atc tat agc ttt aga aat aag gac atg aag att gca att aaa	912
Pro Ile Ile Tyr Ser Phe Arg Asn Lys Asp Met Lys Ile Ala Ile Lys	
290 295 300	
aag ctt ttc tgc cct cag aag atg gtt aat tta tct gta gat	954
Lys Leu Phe Cys Pro Gln Lys Met Val Asn Leu Ser Val Asp	
305 310 315	
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<211>315

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<213> Homo sapiens

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Phe Pro Gln Phe Glu Asp Gly Ser Leu Leu Phe Phe Ile Pro Leu Phe  
20 25 30

Val Ile Tyr Ile Phe Ile Val Ile Gly Asn Leu Ile Val Phe Phe Ala  
35 40 45

Val Arg Val Asp Thr Arg Leu His Asn Pro Met Tyr Asn Phe Ile Ser  
50 55 60

Ile Phe Ser Phe Leu Glu Ile Trp Tyr Thr Thr Ala Thr Ile Pro Lys  
65 70 75 80

Met Leu Ser Ile Leu Ile Ser Arg Gln Arg Thr Ile Ser Met Val Gly  
85 90 95

Cys Leu Leu Gln Met Tyr Phe Phe His Ser Leu Gly Asn Ser Glu Gly  
100 105 110

Ile Leu Leu Thr Thr Met Ala Ile Asp Arg Tyr Val Ala Ile Cys Asn  
115 120 125

Pro Leu Arg Tyr Pro Thr Ile Met Thr Pro Gly Leu Cys Val Gln Leu  
130 135 140

Ser Val Gly Ser Cys Ile Phe Gly Phe Leu Val Leu Leu Pro Glu Ile  
145 150 155 160

Ala Trp Ile Ser Thr Leu Pro Phe Cys Gly Pro Asn Gln Ile His Gln  
165 170 175

Ile Phe Cys Asp Phe Glu Pro Val Leu Arg Leu Ala Cys Thr Asp Thr  
180 185 190

Ser Met Ile Leu Ile Glu Asp Val Ile His Ala Val Ala Ile Val Phe  
195 200 205

Ser Val Leu Ile Ile Ala Phe Ser Tyr Ile Arg Ile Ile Thr Val Ile  
210 215 220

Leu Arg Ile Pro Ser Val Glu Gly Arg Gln Lys Ala Phe Ser Thr Cys  
225 230 235 240

Ala Ala His Leu Ser Val Phe Leu Met Phe Tyr Gly Ser Val Ser Leu  
245 250 255

Met Tyr Leu Arg Phe Ser Ala Thr Phe Pro Pro Ile Leu Asp Thr Ala  
260 265 270

Val Ala Leu Met Phe Ala Val Leu Ala Pro Phe Phe Asn Pro Ile Ile  
275 280 285

Tyr Ser Phe Arg Asn Lys Asp Met Lys Ile Ala Ile Lys Lys Leu Phe



290	295	300	
Cys Pro Gln Lys Met Val Asn Leu Ser Val Asp			
305	310	315	
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Phe Phe Ile Pro Leu Phe Val Ile Tyr Ile Phe Ile Val Ile Gly			
1 5 10 15			
aat ctt att gta ttt ttt gca gtc agg gtg gat acc cgt ctc cac aac			95
Asn Leu Ile Val Phe Phe Ala Val Arg Val Asp Thr Arg Leu His Asn			
20 25 30			
ccc atg tat aat ttt atc agc att ttc tca ttt ctg gag atc tgg tac			143
Pro Met Tyr Asn Phe Ile Ser Ile Phe Ser Phe Leu Glu Ile Trp Tyr			
35 40 45			
aca act gcc aca att ccc aag atg ctc tcc atc ctc atc agc agg cag			191
Thr Thr Ala Thr Ile Pro Lys Met Leu Ser Ile Leu Ile Ser Arg Gln			
50 55 60			
agg acc atc tcc atg gtt ggt tgc ctc ttg cag atg tac ttc ttc cat			239
Arg Thr Ile Ser Met Val Gly Cys Leu Leu Gln Met Tyr Phe Phe His			
65 70 75			
tca ctg gga aat tca gag ggg att ttg ttg acc acc atg gcc att gat			287
Ser Leu Gly Asn Ser Glu Gly Ile Leu Leu Thr Thr Met Ala Ile Asp			
80 85 90 95			
agg tac gtt gcc atc tgt aac cct ctc cgc tac cca acc atc atg acc			335
Arg Tyr Val Ala Ile Cys Asn Pro Leu Arg Tyr Pro Thr Ile Met Thr			
100 105 110			
ccc ggg ctc tgt gtt cag ctc tct gtg ggg tcc tgc atc ttt ggc ttt			383
Pro Gly Leu Cys Val Gln Leu Ser Val Gly Ser Cys Ile Phe Gly Phe			
115 120 125			
ctt gtg ttg ctc cca gag att gca tgg att tcc aca ctg ccc ttc tgt			431
Leu Val Leu Leu Pro Glu Ile Ala Trp Ile Ser Thr Leu Pro Phe Cys			
130 135 140			
gga ccc aac caa atc cac cag atc ttc tgt gat ttt gaa cct gtg ctg			479
Gly Pro Asn Gln Ile His Gln Ile Phe Cys Asp Phe Glu Pro Val Leu			
145 150 155			
cgc ttg gcc tgt aca gac acg tcc atg att ctg att gag gat gtg atc			527
Arg Leu Ala Cys Thr Asp Thr Ser Met Ile Leu Ile Glu Asp Val Ile			
160 165 170 175			

cat gct gtg gcc att gta ttc tct gtc ctg att att gcc ttt tct tat	575
His Ala Val Ala Ile Val Phe Ser Val Leu Ile Ile Ala Phe Ser Tyr	
180 185 190	
atc aga atc atc act gta atc ctg agg att ccc tct gtt gaa ggc cgc	623
Ile Arg Ile Ile Thr Val Ile Leu Arg Ile Pro Ser Val Glu Gly Arg	
195 200 205	
cag aag gcc ttt tct acc tgt gcc gcc cat ctt agt gtc ttt ctg atg	671
Gln Lys Ala Phe Ser Thr Cys Ala Ala His Leu Ser Val Phe Leu Met	
210 215 220	
ttc tat ggc agt gta tcc ctc atg tac ctg cgt ttc tct gcc act ttc	719
Phe Tyr Gly Ser Val Ser Leu Met Tyr Leu Arg Phe Ser Ala Thr Phe	
225 230 235	
cca ccg att ttg gac aca gct gtt gca ctg atg ttt gca gtt ctt gct	767
Pro Pro Ile Leu Asp Thr Ala Val Ala Leu Met Phe Ala Val Leu Ala	
240 245 250 255	
ccc ttt ttc aac cct atc atc tat agc ttt aga aat aag gac atg aag	815
Pro Phe Phe Asn Pro Ile Ile Tyr Ser Phe Arg Asn Lys Asp Met Lys	
260 265 270	
att gca att aaa aag ctt ttc tgc cct cag aag atg gtt aat tta tct	863
Ile Ala Ile Lys Lys Leu Phe Cys Pro Gln Lys Met Val Asn Leu Ser	
275 280 285	
gta gat taatgctagc tcataggcac ctttcactgt ggatgttact ctaacacaat	919
Val Asp	
aaaccatata	929

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 <212>PRT  
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 Leu Ile Val Phe Phe Ala Val Arg Val Asp Thr Arg Leu His Asn Pro  
 20 25 30  
 Met Tyr Asn Phe Ile Ser Ile Phe Ser Phe Leu Glu Ile Trp Tyr Thr  
 35 40 45  
 Thr Ala Thr Ile Pro Lys Met Leu Ser Ile Leu Ile Ser Arg Gln Arg  
 50 55 60  
 Thr Ile Ser Met Val Gly Cys Leu Leu Gln Met Tyr Phe Phe His Ser  
 65 70 75 80

Leu Gly Asn Ser Glu Gly Ile Leu Leu Thr Thr Met Ala Ile Asp Arg  
                                     85                                    90                                    95  
 Tyr Val Ala Ile Cys Asn Pro Leu Arg Tyr Pro Thr Ile Met Thr Pro  
                                     100                                    105                                    110  
 Gly Leu Cys Val Gln Leu Ser Val Gly Ser Cys Ile Phe Gly Phe Leu  
                                     115                                    120                                    125  
 Val Leu Leu Pro Glu Ile Ala Trp Ile Ser Thr Leu Pro Phe Cys Gly  
                                     130                                    135                                    140  
 Pro Asn Gln Ile His Gln Ile Phe Cys Asp Phe Glu Pro Val Leu Arg  
 145                                    150                                    155                                    160  
 Leu Ala Cys Thr Asp Thr Ser Met Ile Leu Ile Glu Asp Val Ile His  
                                     165                                    170                                    175  
 Ala Val Ala Ile Val Phe Ser Val Leu Ile Ile Ala Phe Ser Tyr Ile  
                                     180                                    185                                    190  
 Arg Ile Ile Thr Val Ile Leu Arg Ile Pro Ser Val Glu Gly Arg Gln  
                                     195                                    200                                    205  
 Lys Ala Phe Ser Thr Cys Ala Ala His Leu Ser Val Phe Leu Met Phe  
                                     210                                    215                                    220  
 Tyr Gly Ser Val Ser Leu Met Tyr Leu Arg Phe Ser Ala Thr Phe Pro  
 225                                    230                                    235                                    240  
 Pro Ile Leu Asp Thr Ala Val Ala Leu Met Phe Ala Val Leu Ala Pro  
                                     245                                    250                                    255  
 Phe Phe Asn Pro Ile Ile Tyr Ser Phe Arg Asn Lys Asp Met Lys Ile  
                                     260                                    265                                    270  
 Ala Ile Lys Lys Leu Phe Cys Pro Gln Lys Met Val Asn Leu Ser Val  
                                     275                                    280                                    285

Asp

<210>195

<211>972

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(3) .. (954)

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   Met Val Ile Leu Ser Trp Glu Asn Gln Thr Met Arg Val Glu Phe  
           1                                    5                                    10                                    15

gtg ctt caa gga ttc tct tcc atc aga cag tta aat att ttc ctc ttt      95

Val	Leu	Gln	Gly	Phe	Ser	Ser	Ile	Arg	Gln	Leu	Asn	Ile	Phe	Leu	Phe		
				20					25					30			
atg	ata	att	tta	gtt	ttc	tac	atc	tta	act	gtt	tct	gga	aac	atc	ctc	143	
Met	Ile	Ile	Leu	Val	Phe	Tyr	Ile	Leu	Thr	Val	Ser	Gly	Asn	Ile	Leu		
			35					40					45				
att	gtc	ctt	cta	gtt	tta	gtc	aga	cat	cat	ctc	cac	acc	cct	atg	tac	191	
Ile	Val	Leu	Leu	Val	Leu	Val	Arg	His	His	Leu	His	Thr	Pro	Met	Tyr		
			50				55					60					
ttc	ctc	ctg	gtg	aac	ttg	tcc	tgt	ctg	gag	atc	tgg	tat	acc	tct	aac	239	
Phe	Leu	Leu	Val	Asn	Leu	Ser	Cys	Leu	Glu	Ile	Trp	Tyr	Thr	Ser	Asn		
			65				70				75						
atc	atc	ccc	aaa	atg	ttg	ctg	att	atc	ata	gct	gaa	gag	aag	act	atc	287	
Ile	Ile	Pro	Lys	Met	Leu	Leu	Ile	Ile	Ile	Ala	Glu	Glu	Lys	Thr	Ile		
			80				85			90					95		
tct	gtg	gct	ggc	tgg	ctg	gca	caa	ttc	tac	ttc	ttc	gga	tcc	ctg	gct	335	
Ser	Val	Ala	Gly	Trp	Leu	Ala	Gln	Phe	Tyr	Phe	Phe	Gly	Ser	Leu	Ala		
				100				105						110			
gcc	acg	gag	tgc	ctc	ttg	ctc	act	gtg	atg	tcc	tat	gat	cgc	tac	cta	383	
Ala	Thr	Glu	Cys	Leu	Leu	Leu	Thr	Val	Met	Ser	Tyr	Asp	Arg	Tyr	Leu		
			115					120					125				
gcc	atc	tgc	cag	cct	ctt	tgc	tac	cgt	gtc	ctc	atg	act	ggc	ccc	ctt	431	
Ala	Ile	Cys	Gln	Pro	Leu	Cys	Tyr	Arg	Val	Leu	Met	Thr	Gly	Pro	Leu		
			130					135					140				
tgc	atc	agg	cta	gct	gct	ggc	tct	tgg	ttc	tgc	tgc	ttc	ctc	ctt	aca	479	
Cys	Ile	Arg	Leu	Ala	Ala	Gly	Ser	Trp	Phe	Cys	Cys	Phe	Leu	Leu	Thr		
			145				150					155					
gca	atc	acc	atg	gtc	ttg	cta	tgt	aga	cta	acc	ttc	tgt	gga	ccc	tat	527	
Ala	Ile	Thr	Met	Val	Leu	Leu	Cys	Arg	Leu	Thr	Phe	Cys	Gly	Pro	Tyr		
					165					170					175		
gaa	act	gat	cac	ttc	ttt	tgt	gac	ttc	acc	cct	ctg	gtt	cat	ctc	tcc	575	
Glu	Thr	Asp	His	Phe	Phe	Cys	Asp	Phe	Thr	Pro	Leu	Val	His	Leu	Ser		
				180					185					190			
tgc	atg	gat	acc	tca	gtg	act	gag	acc	att	gcc	ttt	gcc	acc	tct	tct	623	
Cys	Met	Asp	Thr	Ser	Val	Thr	Glu	Thr	Ile	Ala	Phe	Ala	Thr	Ser	Ser		
				195					200				205				
gca	gta	act	ctg	atc	cca	ttt	ctc	ctc	att	gta	gcc	tcc	tac	tcc	tgc	671	
Ala	Val	Thr	Leu	Ile	Pro	Phe	Leu	Leu	Ile	Val	Ala	Ser	Tyr	Ser	Cys		
			210				215					220					
gtc	ctt	tct	gct	atc	cta	aga	atc	cca	tct	tgc	aca	ggc	cag	aaa	aag	719	
Val	Leu	Ser	Ala	Ile	Leu	Arg	Ile	Pro	Ser	Cys	Thr	Gly	Gln	Lys	Lys		
			225				230					235					
gcc	ttc	tcc	acc	tgc	tct	tcc	cac	ctc	act	gtg	gtc	ata	gtg	ttt	tat	767	
Ala	Phe	Ser	Thr	Cys	Ser	Ser	His	Leu	Thr	Val	Val	Ile	Val	Phe	Tyr		

240	245	250	255	
ggg aca ctg att gcc aca tac ctt gtg ccc tca gcc aac tca tcc caa				815
Gly Thr Leu Ile Ala Thr Tyr Leu Val Pro Ser Ala Asn Ser Ser Gln				
260	265	270		
ctc ttg tgc aaa ggg tcc tct ctg ctc tac atc atc ctg aca ccc atg				863
Leu Leu Cys Lys Gly Ser Ser Leu Leu Tyr Ile Ile Leu Thr Pro Met				
275	280	285		
ttt aac ccc atc att tat agc ctg aga aat aga gac atc cat gaa gct				911
Phe Asn Pro Ile Ile Tyr Ser Leu Arg Asn Arg Asp Ile His Glu Ala				
290	295	300		
ctg aag aag tgc ttg agg aag aag tca ggt gtt tgc ctt aga				953
Leu Lys Lys Cys Leu Arg Lys Lys Ser Gly Val Cys Leu Arg				
305	310	315		
taatacgaaa aggaaaaaa				972

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 <212>PRT  
 <213> Homo sapiens

<400>196  
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 Leu Gln Gly Phe Ser Ser Ile Arg Gln Leu Asn Ile Phe Leu Phe Met  
 20 25 30  
 Ile Ile Leu Val Phe Tyr Ile Leu Thr Val Ser Gly Asn Ile Leu Ile  
 35 40 45  
 Val Leu Leu Val Leu Val Arg His His Leu His Thr Pro Met Tyr Phe  
 50 55 60  
 Leu Leu Val Asn Leu Ser Cys Leu Glu Ile Trp Tyr Thr Ser Asn Ile  
 65 70 75 80  
 Ile Pro Lys Met Leu Leu Ile Ile Ile Ala Glu Glu Lys Thr Ile Ser  
 85 90 95  
 Val Ala Gly Trp Leu Ala Gln Phe Tyr Phe Phe Gly Ser Leu Ala Ala  
 100 105 110  
 Thr Glu Cys Leu Leu Leu Thr Val Met Ser Tyr Asp Arg Tyr Leu Ala  
 115 120 125  
 Ile Cys Gln Pro Leu Cys Tyr Arg Val Leu Met Thr Gly Pro Leu Cys  
 130 135 140  
 Ile Arg Leu Ala Ala Gly Ser Trp Phe Cys Cys Phe Leu Leu Thr Ala  
 145 150 155 160

Ile Thr Met Val Leu Leu Cys Arg Leu Thr Phe Cys Gly Pro Tyr Glu  
 165 170 175  
 Thr Asp His Phe Phe Cys Asp Phe Thr Pro Leu Val His Leu Ser Cys  
 180 185 190  
 Met Asp Thr Ser Val Thr Glu Thr Ile Ala Phe Ala Thr Ser Ser Ala  
 195 200 205  
 Val Thr Leu Ile Pro Phe Leu Leu Ile Val Ala Ser Tyr Ser Cys Val  
 210 215 220  
 Leu Ser Ala Ile Leu Arg Ile Pro Ser Cys Thr Gly Gln Lys Lys Ala  
 225 230 235 240  
 Phe Ser Thr Cys Ser Ser His Leu Thr Val Val Ile Val Phe Tyr Gly  
 245 250 255  
 Thr Leu Ile Ala Thr Tyr Leu Val Pro Ser Ala Asn Ser Ser Gln Leu  
 260 265 270  
 Leu Cys Lys Gly Ser Ser Leu Leu Tyr Ile Ile Leu Thr Pro Met Phe  
 275 280 285  
 Asn Pro Ile Ile Tyr Ser Leu Arg Asn Arg Asp Ile His Glu Ala Leu  
 290 295 300  
 Lys Lys Cys Leu Arg Lys Lys Ser Gly Val Cys Leu Arg  
 305 310 315

<210>197

<211>987

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(17) .. (953)

<400>197

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 1 5 10  
 ctt aga ttc ctc ctt atc ggg atc act gga ctg gag aaa agt cgc acc 97  
 Leu Arg Phe Leu Leu Ile Gly Ile Thr Gly Leu Glu Lys Ser Arg Thr  
 15 20 25  
 tgg ata tcc att cct ttc tta tct gtg tac ctt ctt tct tgg atg ggt 145  
 Trp Ile Ser Ile Pro Phe Leu Ser Val Tyr Leu Leu Ser Trp Met Gly  
 30 35 40  
 aat ttt acc gtc ctc ttt ttt atc aag aca gag caa agc ctc cat gaa 193  
 Asn Phe Thr Val Leu Phe Phe Ile Lys Thr Glu Gln Ser Leu His Glu  
 45 50 55  
 cct atg tat tat ttg ctt tcc atg ctc tcc atc tct gac cta ggg ctg 241

Pro Met Tyr Tyr Leu Leu Ser Met Leu Ser Ile Ser Asp Leu Gly Leu	
60 65 70 75	
tct ctg tct tcc tta ccc atc act ttg gga cta ttc cta ttt gat gtc	289
Ser Leu Ser Ser Leu Pro Ile Thr Leu Gly Leu Phe Leu Phe Asp Val	
80 85 90	
cat gaa att cat gca gct cca tgc ttt gcc cag gaa ttt ttt atc cat	337
His Glu Ile His Ala Ala Pro Cys Phe Ala Gln Glu Phe Phe Ile His	
95 100 105	
ctg ttt aca gtc agt gaa gcc tct gta ctg tct gta atg gca ttt gac	385
Leu Phe Thr Val Ser Glu Ala Ser Val Leu Ser Val Met Ala Phe Asp	
110 115 120	
tgg tat gtg gca atc cac agt cct ttg aga tac agc act atc tta act	433
Trp Tyr Val Ala Ile His Ser Pro Leu Arg Tyr Ser Thr Ile Leu Thr	
125 130 135	
agt ccc aga gcc atc aaa aca ggg gtt ctt ctg act tcc aag aat gtt	481
Ser Pro Arg Ala Ile Lys Thr Gly Val Leu Leu Thr Ser Lys Asn Val	
140 145 150 155	
ctt ttg atc ctt cca ctg ccc ttt ctc ttg caa agg ctg aga tat tgt	529
Leu Leu Ile Leu Pro Leu Pro Phe Leu Leu Gln Arg Leu Arg Tyr Cys	
160 165 170	
cat caa aac ctg ctc tcc cac tcc tat tgt ctc cac cag gat gtc atg	577
His Gln Asn Leu Leu Ser His Ser Tyr Cys Leu His Gln Asp Val Met	
175 180 185	
aag ctg atg tgt tct gac aac aca gtc aat gtt gtc tac gga ctc tgt	625
Lys Leu Met Cys Ser Asp Asn Thr Val Asn Val Val Tyr Gly Leu Cys	
190 195 200	
gca gga ctt tct act atg ctg gac ttg gtg ttt att acc ttc tcc tat	673
Ala Gly Leu Ser Thr Met Leu Asp Leu Val Phe Ile Thr Phe Ser Tyr	
205 210 215	
atg att tta agg gct gta ctg gga att gct acc ccc aga cag cag ttc	721
Met Ile Leu Arg Ala Val Leu Gly Ile Ala Thr Pro Arg Gln Gln Phe	
220 225 230 235	
aag gcc ctc aac acg tgc atc tct cac atc tgt gct gtg ctt atc ttc	769
Lys Ala Leu Asn Thr Cys Ile Ser His Ile Cys Ala Val Leu Ile Phe	
240 245 250	
tat gtg ccc acg ctg agt gct gcc atg ctc cac cag ttt gcc agg gat	817
Tyr Val Pro Thr Leu Ser Ala Ala Met Leu His Gln Phe Ala Arg Asp	
255 260 265	
gtg tct cct atg atc cac gtc ctc atg gct gat att ttt ctg ctg gtg	865
Val Ser Pro Met Ile His Val Leu Met Ala Asp Ile Phe Leu Leu Val	
270 275 280	
cca ccc ctg ttg aat ccc atc gtg tac tgt gtg aag acc cac caa atc	913
Pro Pro Leu Leu Asn Pro Ile Val Tyr Cys Val Lys Thr His Gln Ile	

285 290 295  
cga gaa aag gtt gtg ggg aaa ctt tgt cca aaa gta agt tgatcaaagg 962  
Arg Glu Lys Val Val Gly Lys Leu Cys Pro Lys Val Ser  
300 305 310

aatgagaaag ggaatgaatg tataa 987

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<212>PRT  
<213> Homo sapiens

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Ile Gly Ile Thr Gly Leu Glu Lys Ser Arg Thr Trp Ile Ser Ile Pro  
20 25 30

Phe Leu Ser Val Tyr Leu Leu Ser Trp Met Gly Asn Phe Thr Val Leu  
35 40 45

Phe Phe Ile Lys Thr Glu Gln Ser Leu His Glu Pro Met Tyr Tyr Leu  
50 55 60

Leu Ser Met Leu Ser Ile Ser Asp Leu Gly Leu Ser Leu Ser Ser Leu  
65 70 75 80

Pro Ile Thr Leu Gly Leu Phe Leu Phe Asp Val His Glu Ile His Ala  
85 90 95

Ala Pro Cys Phe Ala Gln Glu Phe Phe Ile His Leu Phe Thr Val Ser  
100 105 110

Glu Ala Ser Val Leu Ser Val Met Ala Phe Asp Trp Tyr Val Ala Ile  
115 120 125

His Ser Pro Leu Arg Tyr Ser Thr Ile Leu Thr Ser Pro Arg Ala Ile  
130 135 140

Lys Thr Gly Val Leu Leu Thr Ser Lys Asn Val Leu Leu Ile Leu Pro  
145 150 155 160

Leu Pro Phe Leu Leu Gln Arg Leu Arg Tyr Cys His Gln Asn Leu Leu  
165 170 175

Ser His Ser Tyr Cys Leu His Gln Asp Val Met Lys Leu Met Cys Ser  
180 185 190

Asp Asn Thr Val Asn Val Val Tyr Gly Leu Cys Ala Gly Leu Ser Thr  
195 200 205

Met Leu Asp Leu Val Phe Ile Thr Phe Ser Tyr Met Ile Leu Arg Ala  
210 215 220



Val Leu Gly Ile Ala Thr Pro Arg Gln Gln Phe Lys Ala Leu Asn Thr  
 225 230 235 240

Cys Ile Ser His Ile Cys Ala Val Leu Ile Phe Tyr Val Pro Thr Leu  
 245 250 255

Ser Ala Ala Met Leu His Gln Phe Ala Arg Asp Val Ser Pro Met Ile  
 260 265 270

His Val Leu Met Ala Asp Ile Phe Leu Leu Val Pro Pro Leu Leu Asn  
 275 280 285

Pro Ile Val Tyr Cys Val Lys Thr His Gln Ile Arg Glu Lys Val Val  
 290 295 300

Gly Lys Leu Cys Pro Lys Val Ser  
 305 310

<210>199

<211>994

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(5)..(944)

<400>199

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Met Ser Val Phe Asn Ser Ser Ala Leu Tyr Pro Arg Phe Leu	
1 5 10	
cta acg ggc ctc tca ggc ctt gaa agc aga tat gac ttg att tcc ctg	94
Leu Thr Gly Leu Ser Gly Leu Glu Ser Arg Tyr Asp Leu Ile Ser Leu	
15 20 25 30	
ccc atc ttc ttg gtt tat gcc acc tca att gcc ggg aac att agc atc	142
Pro Ile Phe Leu Val Tyr Ala Thr Ser Ile Ala Gly Asn Ile Ser Ile	
35 40 45	
ctc ttc att atc aga act gag tct tcc ctc cac caa ccg atg tat tac	190
Leu Phe Ile Ile Arg Thr Glu Ser Ser Leu His Gln Pro Met Tyr Tyr	
50 55 60	
ttt ctg tca atg ctg gca ttc act gac ctg ggc cta tct aac act acc	238
Phe Leu Ser Met Leu Ala Phe Thr Asp Leu Gly Leu Ser Asn Thr Thr	
65 70 75	
tta cct acc atg ttc agt gtc ttc tgg ttc cat gcc cgg gag atc tcc	286
Leu Pro Thr Met Phe Ser Val Phe Trp Phe His Ala Arg Glu Ile Ser	
80 85 90	
ttc aat gct tgt ctg gtc caa atg tac ttc att cat gtt ttc tcg att	334
Phe Asn Ala Cys Leu Val Gln Met Tyr Phe Ile His Val Phe Ser Ile	
95 100 105 110	
att gag tca gct gta ctc ctg gct atg gcc ttt gac tgc ttt ata gca	382

Ile Glu Ser Ala Val Leu Leu Ala Met Ala Phe Asp Cys Phe Ile Ala	
115 120 125	
atc tgt gaa ccc ttg cgc tat gca gcc atc cta acc aat gat gta atc	430
Ile Cys Glu Pro Leu Arg Tyr Ala Ala Ile Leu Thr Asn Asp Val Ile	
130 135 140	
att ggg att ggg ttg gca att gct gga agg gcc ttg gct ctg gtc ttt	478
Ile Gly Ile Gly Leu Ala Ile Ala Gly Arg Ala Leu Ala Leu Val Phe	
145 150 155	
cca gct tct ttc ctc ttg aag agg ctt caa tat cat gat gtc aat att	526
Pro Ala Ser Phe Leu Leu Lys Arg Leu Gln Tyr His Asp Val Asn Ile	
160 165 170	
ctg tcc tac ctc ttc tgc ctg cac cag gac ctc ata aag acg act gta	574
Leu Ser Tyr Leu Phe Cys Leu His Gln Asp Leu Ile Lys Thr Thr Val	
175 180 185 190	
tcc aac tgt cga gtc agc agc atc tat ggc ctc atg gtg gtc atc tgt	622
Ser Asn Cys Arg Val Ser Ser Ile Tyr Gly Leu Met Val Val Ile Cys	
195 200 205	
tcc atg gga ctt gat tca gtg ctt ctc ctc ctc tcc tat gtc ctc atc	670
Ser Met Gly Leu Asp Ser Val Leu Leu Leu Leu Ser Tyr Val Leu Ile	
210 215 220	
ctg ggc aca gtg ttg agt ata gcc tcc aag gca gag aga gtg aga gcc	718
Leu Gly Thr Val Leu Ser Ile Ala Ser Lys Ala Glu Arg Val Arg Ala	
225 230 235	
ctc aat act tgc atc tcc cac atc tgt gct gta ctc acc ttc tat aca	766
Leu Asn Thr Cys Ile Ser His Ile Cys Ala Val Leu Thr Phe Tyr Thr	
240 245 250	
cca atg att ggg cta tct atg atc cat cgc tat gga cag aat gct tcc	814
Pro Met Ile Gly Leu Ser Met Ile His Arg Tyr Gly Gln Asn Ala Ser	
255 260 265 270	
tca att gtc cat gtg ctg atg gcc aat gtc tac ttg ctg gtt cca cct	862
Ser Ile Val His Val Leu Met Ala Asn Val Tyr Leu Leu Val Pro Pro	
275 280 285	
ctc atg aac ccc gtt gtc tac agt gtt aag acc aag cag att cgt gac	910
Leu Met Asn Pro Val Val Tyr Ser Val Lys Thr Lys Gln Ile Arg Asp	
290 295 300	
aga atc ttc aat aaa ttc aag aaa cat gaa gtg tagatgacag	953
Arg Ile Phe Asn Lys Phe Lys Lys His Glu Val	
305 310	
agattctgaa acataacttt cccctccattc cccatatatt t	994

<210>200

<211>313

<212>PRT

<213> Homo sapiens

<400>200

Met Ser Val Phe Asn Ser Ser Ala Leu Tyr Pro Arg Phe Leu Leu Thr  
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Gly Leu Ser Gly Leu Glu Ser Arg Tyr Asp Leu Ile Ser Leu Pro Ile  
20 25 30  
Phe Leu Val Tyr Ala Thr Ser Ile Ala Gly Asn Ile Ser Ile Leu Phe  
35 40 45  
Ile Ile Arg Thr Glu Ser Ser Leu His Gln Pro Met Tyr Tyr Phe Leu  
50 55 60  
Ser Met Leu Ala Phe Thr Asp Leu Gly Leu Ser Asn Thr Thr Leu Pro  
65 70 75 80  
Thr Met Phe Ser Val Phe Trp Phe His Ala Arg Glu Ile Ser Phe Asn  
85 90 95  
Ala Cys Leu Val Gln Met Tyr Phe Ile His Val Phe Ser Ile Ile Glu  
100 105 110  
Ser Ala Val Leu Leu Ala Met Ala Phe Asp Cys Phe Ile Ala Ile Cys  
115 120 125  
Glu Pro Leu Arg Tyr Ala Ala Ile Leu Thr Asn Asp Val Ile Ile Gly  
130 135 140  
Ile Gly Leu Ala Ile Ala Gly Arg Ala Leu Ala Leu Val Phe Pro Ala  
145 150 155 160  
Ser Phe Leu Leu Lys Arg Leu Gln Tyr His Asp Val Asn Ile Leu Ser  
165 170 175  
Tyr Leu Phe Cys Leu His Gln Asp Leu Ile Lys Thr Thr Val Ser Asn  
180 185 190  
Cys Arg Val Ser Ser Ile Tyr Gly Leu Met Val Val Ile Cys Ser Met  
195 200 205  
Gly Leu Asp Ser Val Leu Leu Leu Leu Ser Tyr Val Leu Ile Leu Gly  
210 215 220  
Thr Val Leu Ser Ile Ala Ser Lys Ala Glu Arg Val Arg Ala Leu Asn  
225 230 235 240  
Thr Cys Ile Ser His Ile Cys Ala Val Leu Thr Phe Tyr Thr Pro Met  
245 250 255  
Ile Gly Leu Ser Met Ile His Arg Tyr Gly Gln Asn Ala Ser Ser Ile  
260 265 270  
Val His Val Leu Met Ala Asn Val Tyr Leu Leu Val Pro Pro Leu Met  
275 280 285

Asn Pro Val Val Tyr Ser Val Lys Thr Lys Gln Ile Arg Asp Arg Ile  
 290 295 300

Phe Asn Lys Phe Lys Lys His Glu Val  
 305 310

<210>201

<211>981

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(4)..(919)

<400>201

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Met Arg Asn Arg Ser Val Val Pro Glu Phe Val Leu Leu Gly Leu	
1 5 10 15	
tca gct ggc ccc cag acc cag act ctg ctc ttt gtg ctg ttc gtg gtg	96
Ser Ala Gly Pro Gln Thr Gln Thr Leu Leu Phe Val Leu Phe Val Val	
20 25 30	
att tgc ctc ctg act gtg atg gga aac ctg ctg ctg ctg gtg gtg att	144
Ile Cys Leu Leu Thr Val Met Gly Asn Leu Leu Leu Leu Val Val Ile	
35 40 45	
aat gct gat tct tgc ctc cac aca ccc atg tac ttc ttc ctg gga caa	192
Asn Ala Asp Ser Cys Leu His Thr Pro Met Tyr Phe Phe Leu Gly Gln	
50 55 60	
ttg tcc ttc ttg gat ctc tgc cat tcc tct gtc act gca cct aag ctg	240
Leu Ser Phe Leu Asp Leu Cys His Ser Ser Val Thr Ala Pro Lys Leu	
65 70 75	
ttg gag aac ctc ctg tct gag aag aaa acc atc tca gta gag ggc tgc	288
Leu Glu Asn Leu Leu Ser Glu Lys Lys Thr Ile Ser Val Glu Gly Cys	
80 85 90 95	
atg gct cag gtc ttc ttt gtg ttt gcc act ggg ggc act gaa tcc tcc	336
Met Ala Gln Val Phe Phe Val Phe Ala Thr Gly Gly Thr Glu Ser Ser	
100 105 110	
ctg ctt gct gtg atg gcc tat gac cgc tat gtt gcc atc agc tct cct	384
Leu Leu Ala Val Met Ala Tyr Asp Arg Tyr Val Ala Ile Ser Ser Pro	
115 120 125	
ttg ctc tat ggc caa gtg atg aac aga cag ctg tgt tca ggg ctg gtg	432
Leu Leu Tyr Gly Gln Val Met Asn Arg Gln Leu Cys Ser Gly Leu Val	
130 135 140	
ggg ggc tca tgg ggc ttg gct ttt ctg gat gcc ctc atc aat atc ctt	480
Gly Gly Ser Trp Gly Leu Ala Phe Leu Asp Ala Leu Ile Asn Ile Leu	
145 150 155	
gta gct ctc aat tta gac ttc tgt gag gct caa aat atc cac cac ttc	528

Val Ala Leu Asn Leu Asp Phe Cys Glu Ala Gln Asn Ile His His Phe  
160 165 170 175

agc tgt gag ctg ccc tct ctc tat cct ttg tct tgc tct gat gtg tca 576  
Ser Cys Glu Leu Pro Ser Leu Tyr Pro Leu Ser Cys Ser Asp Val Ser  
180 185 190

gca agt ttt acc acc ctg ctc tgc tcc agc ttc ctg cat ttc ttt gga 624  
Ala Ser Phe Thr Thr Leu Leu Cys Ser Ser Phe Leu His Phe Phe Gly  
195 200 205

aat ttt ctc atg ata ttc ttg tct tat att tgc att ttg tcc acc atc 672  
Asn Phe Leu Met Ile Phe Leu Ser Tyr Ile Cys Ile Leu Ser Thr Ile  
210 215 220

ctg agg atc agc tcc act aca ggc aga agc aaa gcc ttc tcc acc tgc 720  
Leu Arg Ile Ser Ser Thr Thr Gly Arg Ser Lys Ala Phe Ser Thr Cys  
225 230 235

tcc tcc cac ctc act gca gtg att ttc ttt tat ggc tcc gga tta ctc 768  
Ser Ser His Leu Thr Ala Val Ile Phe Phe Tyr Gly Ser Gly Leu Leu  
240 245 250 255

cgc tat ctc atg cca aat tca gga tcc att caa gag ctg atc ttc tcc 816  
Arg Tyr Leu Met Pro Asn Ser Gly Ser Ile Gln Glu Leu Ile Phe Ser  
260 265 270

ttg cag tac agc gtg atc act ccc atg ctg aat ctc ctc att tac agc 864  
Leu Gln Tyr Ser Val Ile Thr Pro Met Leu Asn Leu Leu Ile Tyr Ser  
275 280 285

ctg aag aac agg gag gtg aag gca gct gtg aga aga aca ttg aga aaa 912  
Leu Lys Asn Arg Glu Val Lys Ala Ala Val Arg Arg Thr Leu Arg Lys  
290 295 300

tat ttc tagtgtttca atagacttat gaaatcagaa tgatgagga actggataga 968  
Tyr Phe  
305

actgcaacaa gca 981

<210>202

<211>305

<212>PRT

<213> Homo sapiens

<400>202

Met Arg Asn Arg Ser Val Val Pro Glu Phe Val Leu Leu Gly Leu Ser  
1 5 10 15

Ala Gly Pro Gln Thr Gln Thr Leu Leu Phe Val Leu Phe Val Val Ile  
20 25 30

Cys Leu Leu Thr Val Met Gly Asn Leu Leu Leu Leu Val Val Ile Asn  
35 40 45

Ala Asp Ser Cys Leu His Thr Pro Met Tyr Phe Phe Leu Gly Gln Leu  
 50 55 60  
 Ser Phe Leu Asp Leu Cys His Ser Ser Val Thr Ala Pro Lys Leu Leu  
 65 70 75 80  
 Glu Asn Leu Leu Ser Glu Lys Lys Thr Ile Ser Val Glu Gly Cys Met  
 85 90 95  
 Ala Gln Val Phe Phe Val Phe Ala Thr Gly Gly Thr Glu Ser Ser Leu  
 100 105 110  
 Leu Ala Val Met Ala Tyr Asp Arg Tyr Val Ala Ile Ser Ser Pro Leu  
 115 120 125  
 Leu Tyr Gly Gln Val Met Asn Arg Gln Leu Cys Ser Gly Leu Val Gly  
 130 135 140  
 Gly Ser Trp Gly Leu Ala Phe Leu Asp Ala Leu Ile Asn Ile Leu Val  
 145 150 155 160  
 Ala Leu Asn Leu Asp Phe Cys Glu Ala Gln Asn Ile His His Phe Ser  
 165 170 175  
 Cys Glu Leu Pro Ser Leu Tyr Pro Leu Ser Cys Ser Asp Val Ser Ala  
 180 185 190  
 Ser Phe Thr Thr Leu Leu Cys Ser Ser Phe Leu His Phe Phe Gly Asn  
 195 200 205  
 Phe Leu Met Ile Phe Leu Ser Tyr Ile Cys Ile Leu Ser Thr Ile Leu  
 210 215 220  
 Arg Ile Ser Ser Thr Thr Gly Arg Ser Lys Ala Phe Ser Thr Cys Ser  
 225 230 235 240  
 Ser His Leu Thr Ala Val Ile Phe Phe Tyr Gly Ser Gly Leu Leu Arg  
 245 250 255  
 Tyr Leu Met Pro Asn Ser Gly Ser Ile Gln Glu Leu Ile Phe Ser Leu  
 260 265 270  
 Gln Tyr Ser Val Ile Thr Pro Met Leu Asn Leu Leu Ile Tyr Ser Leu  
 275 280 285  
 Lys Asn Arg Glu Val Lys Ala Ala Val Arg Arg Thr Leu Arg Lys Tyr  
 290 295 300  
 Phe  
 305  
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 <212>DNA  
 <213> Homo sapiens

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<220>
<221> CDS
<222>(8)..(944)
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      Met Ala Asn Gln Thr Val Val Thr Glu Phe Phe Leu Gln Gly
            1                    5                    10

ctg acg gat acc aaa gag ctt cag gtg gct gtt ttt ctg ctc ctg ctg 97
Leu Thr Asp Thr Lys Glu Leu Gln Val Ala Val Phe Leu Leu Leu Leu
      15                    20                    25                    30

ctt gcc tac ctt gtg act gtc tct ggg aac ctg atc atc atc agc ctg 145
Leu Ala Tyr Leu Val Thr Val Ser Gly Asn Leu Ile Ile Ile Ser Leu
            35                    40                    45

acc ttg ctg gac acc cgc ctg cag aca tct atg tac tta ttt ctc cag 193
Thr Leu Leu Asp Thr Arg Leu Gln Thr Ser Met Tyr Leu Phe Leu Gln
            50                    55                    60

aat ctg tcc tgc tta gaa att tgg ttc cag aca gtc atc gtg ccc aag 241
Asn Leu Ser Cys Leu Glu Ile Trp Phe Gln Thr Val Ile Val Pro Lys
            65                    70                    75

atg ctg ctc aac att gcc atg ggg acc aag acc gtt agc ttt gct ggg 289
Met Leu Leu Asn Ile Ala Met Gly Thr Lys Thr Val Ser Phe Ala Gly
            80                    85                    90

tgc att acc cag gac ttt ttc ttt cca cat ctt ctg ggg gcc aca gag 337
Cys Ile Thr Gln Asp Phe Phe Phe Pro His Leu Leu Gly Ala Thr Glu
      95                    100                    105                    110

ttc ttc ctc ctc aca gcc atg gcc tat gac cag tat att gcc atc tgc 385
Phe Phe Leu Leu Thr Ala Met Ala Tyr Asp Gln Tyr Ile Ala Ile Cys
            115                    120                    125

aag ccc ctc cac tac ccc atg ctc ata agt agt aga gtc tgc aca cag 433
Lys Pro Leu His Tyr Pro Met Leu Ile Ser Ser Arg Val Cys Thr Gln
            130                    135                    140

ctc atc ctc acc tgc tgg cta cta ggt ttc tcc ttc atc atc atg cct 481
Leu Ile Leu Thr Cys Trp Leu Leu Gly Phe Ser Phe Ile Ile Met Pro
            145                    150                    155

gtc atc ctg acc agt cag ctt cca ttc tgt gat acc cac atc aag cat 529
Val Ile Leu Thr Ser Gln Leu Pro Phe Cys Asp Thr His Ile Lys His
            160                    165                    170

ttc ttc tgt gac tac acg cct cta atg gag gtg gtc tgc agt ggg cca 577
Phe Phe Cys Asp Tyr Thr Pro Leu Met Glu Val Val Cys Ser Gly Pro
      175                    180                    185                    190

aag gtg ctg gag atg gtg gat ttt acc ctg gcc tta gta gca ctg ttt 625
Lys Val Leu Glu Met Val Asp Phe Thr Leu Ala Leu Val Ala Leu Phe
            195                    200                    205

ggc acc ttg gta ctc atc acc ctg tcc tat gtc cag atc atc cag aca 673

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Gly Thr Leu Val Leu Ile Thr Leu Ser Tyr Val Gln Ile Ile Gln Thr  
 210 215 220  
 att gtc aga atc ccc gct gtc cag gag agg aag aag gct ttc tct acc 721  
 Ile Val Arg Ile Pro Ala Val Gln Glu Arg Lys Lys Ala Phe Ser Thr  
 225 230 235  
 tgt tcc tct cat gtc att atg gtt acc atg tgt tat gac agc tgc ttc 769  
 Cys Ser Ser His Val Ile Met Val Thr Met Cys Tyr Asp Ser Cys Phe  
 240 245 250  
 ttt atg tat gtc aag ccc tct cca gga aag tgg gtt gat gtc aac aag 817  
 Phe Met Tyr Val Lys Pro Ser Pro Gly Lys Trp Val Asp Val Asn Lys  
 255 260 265 270  
 gga gtg tct cta atc aat aca att att gcc cca ctg tta aat ccc ttc 865  
 Gly Val Ser Leu Ile Asn Thr Ile Ile Ala Pro Leu Leu Asn Pro Phe  
 275 280 285  
 atc tgt act ctg agg aac caa caa gtt aag cag gta atg aaa gac cta 913  
 Ile Cys Thr Leu Arg Asn Gln Gln Val Lys Gln Val Met Lys Asp Leu  
 290 295 300  
 gtc aga aaa atg act ttg ttc caa aat aaa taagggccct aaaa 957  
 Val Arg Lys Met Thr Leu Phe Gln Asn Lys  
 305 310  
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 Asp Thr Lys Glu Leu Gln Val Ala Val Phe Leu Leu Leu Leu Leu Ala  
 20 25 30  
 Tyr Leu Val Thr Val Ser Gly Asn Leu Ile Ile Ile Ser Leu Thr Leu  
 35 40 45  
 Leu Asp Thr Arg Leu Gln Thr Ser Met Tyr Leu Phe Leu Gln Asn Leu  
 50 55 60  
 Ser Cys Leu Glu Ile Trp Phe Gln Thr Val Ile Val Pro Lys Met Leu  
 65 70 75 80  
 Leu Asn Ile Ala Met Gly Thr Lys Thr Val Ser Phe Ala Gly Cys Ile  
 85 90 95  
 Thr Gln Asp Phe Phe Phe Pro His Leu Leu Gly Ala Thr Glu Phe Phe  
 100 105 110  
 Leu Leu Thr Ala Met Ala Tyr Asp Gln Tyr Ile Ala Ile Cys Lys Pro  
 115 120 125



Leu His Tyr Pro Met Leu Ile Ser Ser Arg Val Cys Thr Gln Leu Ile  
 130 135 140  
 Leu Thr Cys Trp Leu Leu Gly Phe Ser Phe Ile Ile Met Pro Val Ile  
 145 150 155 160  
 Leu Thr Ser Gln Leu Pro Phe Cys Asp Thr His Ile Lys His Phe Phe  
 165 170 175  
 Cys Asp Tyr Thr Pro Leu Met Glu Val Val Cys Ser Gly Pro Lys Val  
 180 185 190  
 Leu Glu Met Val Asp Phe Thr Leu Ala Leu Val Ala Leu Phe Gly Thr  
 195 200 205  
 Leu Val Leu Ile Thr Leu Ser Tyr Val Gln Ile Ile Gln Thr Ile Val  
 210 215 220  
 Arg Ile Pro Ala Val Gln Glu Arg Lys Lys Ala Phe Ser Thr Cys Ser  
 225 230 235 240  
 Ser His Val Ile Met Val Thr Met Cys Tyr Asp Ser Cys Phe Phe Met  
 245 250 255  
 Tyr Val Lys Pro Ser Pro Gly Lys Trp Val Asp Val Asn Lys Gly Val  
 260 265 270  
 Ser Leu Ile Asn Thr Ile Ile Ala Pro Leu Leu Asn Pro Phe Ile Cys  
 275 280 285  
 Thr Leu Arg Asn Gln Gln Val Lys Gln Val Met Lys Asp Leu Val Arg  
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 Lys Met Thr Leu Phe Gln Asn Lys  
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<210>205

<211>962

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(17)..(956)

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 1 5 10

ctt aga ttc ctc ctt atc ggg atc act gga ctg gag aaa agt cgc acc 97  
 Leu Arg Phe Leu Leu Ile Gly Ile Thr Gly Leu Glu Lys Ser Arg Thr  
 15 20 25

tgg ata tcc att cct ttc tta tct gtg tac ctt ctt tct tgg atg ggt 145  
 Trp Ile Ser Ile Pro Phe Leu Ser Val Tyr Leu Leu Ser Trp Met Gly  
 30 35 40

aat ttt acc gtc ctc ttt ttt atc aag aca gag caa agc ctc cat gaa	193
Asn Phe Thr Val Leu Phe Phe Ile Lys Thr Glu Gln Ser Leu His Glu	
45 50 55	
cct atg tat tat ttg ctt tcc atg ctc tcc atc tct gac cta ggg ctg	241
Pro Met Tyr Tyr Leu Leu Ser Met Leu Ser Ile Ser Asp Leu Gly Leu	
60 65 70 75	
tct ctg tct tcc tta ccc atc act ttg gga cta ttc cta ttt gat gtc	289
Ser Leu Ser Ser Leu Pro Ile Thr Leu Gly Leu Phe Leu Phe Asp Val	
80 85 90	
cat gaa att cat gca gct cca tgc ttt gcc cag gaa ttt ttt atc cat	337
His Glu Ile His Ala Ala Pro Cys Phe Ala Gln Glu Phe Phe Ile His	
95 100 105	
ctg ttt aca gtc agt gaa gcc tct gta ctg tct gta atg gca ttt gac	385
Leu Phe Thr Val Ser Glu Ala Ser Val Leu Ser Val Met Ala Phe Asp	
110 115 120	
tgg tat gtg gca atc cac agt cct ttg aga tac agc act atc tta act	433
Trp Tyr Val Ala Ile His Ser Pro Leu Arg Tyr Ser Thr Ile Leu Thr	
125 130 135	
agt ccc aga gcc atc aaa aca ggg gtt ctt ctg act tcc aag aat gtt	481
Ser Pro Arg Ala Ile Lys Thr Gly Val Leu Leu Thr Ser Lys Asn Val	
140 145 150 155	
ctt ttg atc ctt cca ctg ccc ttt ctc ttg caa agg ctg aga tat tgt	529
Leu Leu Ile Leu Pro Leu Pro Phe Leu Leu Gln Arg Leu Arg Tyr Cys	
160 165 170	
cat caa aac ctg ctc tcc cac tcc tat tgt ctc cac cag gat gtc atg	577
His Gln Asn Leu Leu Ser His Ser Tyr Cys Leu His Gln Asp Val Met	
175 180 185	
aag ctg atg tgt tct gac aac aca gtc aat gtt gtc tac gga ctc tgt	625
Lys Leu Met Cys Ser Asp Asn Thr Val Asn Val Val Tyr Gly Leu Cys	
190 195 200	
gca gga ctt tct act atg ctg gac ttg gtg ttt att acc ttc tcc tat	673
Ala Gly Leu Ser Thr Met Leu Asp Leu Val Phe Ile Thr Phe Ser Tyr	
205 210 215	
att atg att tta agg gct gta ctg gga att gct acc ccc aga cag cag	721
Ile Met Ile Leu Arg Ala Val Leu Gly Ile Ala Thr Pro Arg Gln Gln	
220 225 230 235	
ttc aag gcc ctc aac acg tgc atc tct cac atc tgt gct gtg ctt atc	769
Phe Lys Ala Leu Asn Thr Cys Ile Ser His Ile Cys Ala Val Leu Ile	
240 245 250	
ttc tat gtg ccc acg ctg agt gct gcc atg ctc cac cag ttt gcc agg	817
Phe Tyr Val Pro Thr Leu Ser Ala Ala Met Leu His Gln Phe Ala Arg	
255 260 265	
gat gtg tct cct atg atc cac gtc ctc atg gct gat att ttt ctg ctg	865

Asp Val Ser Pro Met Ile His Val Leu Met Ala Asp Ile Phe Leu Leu  
 270 275 280  
 gtg cca ccc ctg ttg aat ccc atc gtg tac tgt gtg aag acc cac caa 913  
 Val Pro Pro Leu Leu Asn Pro Ile Val Tyr Cys Val Lys Thr His Gln  
 285 290 295  
 atc cga gaa aag gtt gtg ggg aaa ctt tgt cca aaa gta agt 955  
 Ile Arg Glu Lys Val Val Gly Lys Leu Cys Pro Lys Val Ser  
 300 305 310  
 tgatcaa 962

<210>206  
 <211>313  
 <212>PRT  
 <213> Homo sapiens

<400>206  
 Met Ser Pro Leu Asn Asp Thr Lys Met Glu Val Leu Arg Phe Leu Leu  
 1 5 10 15  
 Ile Gly Ile Thr Gly Leu Glu Lys Ser Arg Thr Trp Ile Ser Ile Pro  
 20 25 30  
 Phe Leu Ser Val Tyr Leu Leu Ser Trp Met Gly Asn Phe Thr Val Leu  
 35 40 45  
 Phe Phe Ile Lys Thr Glu Gln Ser Leu His Glu Pro Met Tyr Tyr Leu  
 50 55 60  
 Leu Ser Met Leu Ser Ile Ser Asp Leu Gly Leu Ser Leu Ser Ser Leu  
 65 70 75 80  
 Pro Ile Thr Leu Gly Leu Phe Leu Phe Asp Val His Glu Ile His Ala  
 85 90 95  
 Ala Pro Cys Phe Ala Gln Glu Phe Phe Ile His Leu Phe Thr Val Ser  
 100 105 110  
 Glu Ala Ser Val Leu Ser Val Met Ala Phe Asp Trp Tyr Val Ala Ile  
 115 120 125  
 His Ser Pro Leu Arg Tyr Ser Thr Ile Leu Thr Ser Pro Arg Ala Ile  
 130 135 140  
 Lys Thr Gly Val Leu Leu Thr Ser Lys Asn Val Leu Leu Ile Leu Pro  
 145 150 155 160  
 Leu Pro Phe Leu Leu Gln Arg Leu Arg Tyr Cys His Gln Asn Leu Leu  
 165 170 175  
 Ser His Ser Tyr Cys Leu His Gln Asp Val Met Lys Leu Met Cys Ser  
 180 185 190

Asp Asn Thr Val Asn Val Val Tyr Gly Leu Cys Ala Gly Leu Ser Thr  
 195 200 205  
 Met Leu Asp Leu Val Phe Ile Thr Phe Ser Tyr Ile Met Ile Leu Arg  
 210 215 220  
 Ala Val Leu Gly Ile Ala Thr Pro Arg Gln Gln Phe Lys Ala Leu Asn  
 225 230 235 240  
 Thr Cys Ile Ser His Ile Cys Ala Val Leu Ile Phe Tyr Val Pro Thr  
 245 250 255  
 Leu Ser Ala Ala Met Leu His Gln Phe Ala Arg Asp Val Ser Pro Met  
 260 265 270  
 Ile His Val Leu Met Ala Asp Ile Phe Leu Leu Val Pro Pro Leu Leu  
 275 280 285  
 Asn Pro Ile Val Tyr Cys Val Lys Thr His Gln Ile Arg Glu Lys Val  
 290 295 300  
 Val Gly Lys Leu Cys Pro Lys Val Ser  
 305 310

<210>207

<211>995

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(6)..(945)

<400>207

gcaca atg tct gtc ttc aat agt tct gcc tta tac cct cgc ttc ctc	47
Met Ser Val Phe Asn Ser Ser Ala Leu Tyr Pro Arg Phe Leu	
1 5 10	
cta acg ggc ctc tca ggc ctt gaa agc aga tat gac ttg att tcc ctg	95
Leu Thr Gly Leu Ser Gly Leu Glu Ser Arg Tyr Asp Leu Ile Ser Leu	
15 20 25 30	
ccc atc ttc ttg gtt tat gcc acc tca att gcc ggg aac att agc atc	143
Pro Ile Phe Leu Val Tyr Ala Thr Ser Ile Ala Gly Asn Ile Ser Ile	
35 40 45	
ctc ttc att atc aga act gag tct tcc ctc cac caa ccg atg tat tac	191
Leu Phe Ile Ile Arg Thr Glu Ser Ser Leu His Gln Pro Met Tyr Tyr	
50 55 60	
ttt ctg tca atg ctg gca ttc act gac ctg ggc cta tct aac act acc	239
Phe Leu Ser Met Leu Ala Phe Thr Asp Leu Gly Leu Ser Asn Thr Thr	
65 70 75	
tta cct acc atg ttc agt gtc ttc tgg ttc cat gcc cgg gag atc tcc	287
Leu Pro Thr Met Phe Ser Val Phe Trp Phe His Ala Arg Glu Ile Ser	
80 85 90	

ttc aat gct tgt ctg gtc caa atg tac ttc att cat gtt ttc tcg att	335
Phe Asn Ala Cys Leu Val Gln Met Tyr Phe Ile His Val Phe Ser Ile	
95 100 105 110	
att gag tca gct gta ctc ctg gct atg gcc ttt gac tgc ttt ata gca	383
Ile Glu Ser Ala Val Leu Leu Ala Met Ala Phe Asp Cys Phe Ile Ala	
115 120 125	
atc tgt gaa ccc ttg cgc tat gca gcc atc cta acc aat gat gta atc	431
Ile Cys Glu Pro Leu Arg Tyr Ala Ala Ile Leu Thr Asn Asp Val Ile	
130 135 140	
att ggg att ggg ttg gca att gct gga agg gcc ttg gct ctg gtc ttt	479
Ile Gly Ile Gly Leu Ala Ile Ala Gly Arg Ala Leu Ala Leu Val Phe	
145 150 155	
cca gct tct ttc ctc ttg aag agg ctt caa tat cat gat gtc aat att	527
Pro Ala Ser Phe Leu Leu Lys Arg Leu Gln Tyr His Asp Val Asn Ile	
160 165 170	
ctg tcc tac ctc ttc tgc ctg cac cag gac ctc ata aag acg act gta	575
Leu Ser Tyr Leu Phe Cys Leu His Gln Asp Leu Ile Lys Thr Thr Val	
175 180 185 190	
tcc aac tgt cga gtc agc agc atc tat ggc ctc atg gtg gtc atc tgt	623
Ser Asn Cys Arg Val Ser Ser Ile Tyr Gly Leu Met Val Val Ile Cys	
195 200 205	
tcc atg gga ctt gat tca gtg ctt ctc ctc ctc tcc tat gtc ctc atc	671
Ser Met Gly Leu Asp Ser Val Leu Leu Leu Leu Ser Tyr Val Leu Ile	
210 215 220	
ctg ggc aca gtg ttg agt ata gcc tcc aag gca gag aga gtg aga gcc	719
Leu Gly Thr Val Leu Ser Ile Ala Ser Lys Ala Glu Arg Val Arg Ala	
225 230 235	
ctc aat act tgc atc tcc cac atc tgt gct gta ctc acc ttc tat aca	767
Leu Asn Thr Cys Ile Ser His Ile Cys Ala Val Leu Thr Phe Tyr Thr	
240 245 250	
cca atg att ggg cta tct atg atc cat cgc tat gga cag aat gct tcc	815
Pro Met Ile Gly Leu Ser Met Ile His Arg Tyr Gly Gln Asn Ala Ser	
255 260 265 270	
tca att gtc cat gtg ctg atg gcc aat gtc tac ttg ctg gtt cca cct	863
Ser Ile Val His Val Leu Met Ala Asn Val Tyr Leu Leu Val Pro Pro	
275 280 285	
ctc atg aac ccc gtt gtc tac agt gtt aag acc aag cag att cgt gac	911
Leu Met Asn Pro Val Val Tyr Ser Val Lys Thr Lys Gln Ile Arg Asp	
290 295 300	
aga atc ttc aat aaa ttc aag aaa cat gaa gtg tagatgacag	954
Arg Ile Phe Asn Lys Phe Lys Lys His Glu Val	
305 310	
agattctgaa acataacttt ccctccattc cccatatatt t	995

<210>208

<211>313

<212>PRT

<213> Homo sapiens

<400>208

Met Ser Val Phe Asn Ser Ser Ala Leu Tyr Pro Arg Phe Leu Leu Thr  
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Gly Leu Ser Gly Leu Glu Ser Arg Tyr Asp Leu Ile Ser Leu Pro Ile  
20 25 30

Phe Leu Val Tyr Ala Thr Ser Ile Ala Gly Asn Ile Ser Ile Leu Phe  
35 40 45

Ile Ile Arg Thr Glu Ser Ser Leu His Gln Pro Met Tyr Tyr Phe Leu  
50 55 60

Ser Met Leu Ala Phe Thr Asp Leu Gly Leu Ser Asn Thr Thr Leu Pro  
65 70 75 80

Thr Met Phe Ser Val Phe Trp Phe His Ala Arg Glu Ile Ser Phe Asn  
85 90 95

Ala Cys Leu Val Gln Met Tyr Phe Ile His Val Phe Ser Ile Ile Glu  
100 105 110

Ser Ala Val Leu Leu Ala Met Ala Phe Asp Cys Phe Ile Ala Ile Cys  
115 120 125

Glu Pro Leu Arg Tyr Ala Ala Ile Leu Thr Asn Asp Val Ile Ile Gly  
130 135 140

Ile Gly Leu Ala Ile Ala Gly Arg Ala Leu Ala Leu Val Phe Pro Ala  
145 150 155 160

Ser Phe Leu Leu Lys Arg Leu Gln Tyr His Asp Val Asn Ile Leu Ser  
165 170 175

Tyr Leu Phe Cys Leu His Gln Asp Leu Ile Lys Thr Thr Val Ser Asn  
180 185 190

Cys Arg Val Ser Ser Ile Tyr Gly Leu Met Val Val Ile Cys Ser Met  
195 200 205

Gly Leu Asp Ser Val Leu Leu Leu Leu Ser Tyr Val Leu Ile Leu Gly  
210 215 220

Thr Val Leu Ser Ile Ala Ser Lys Ala Glu Arg Val Arg Ala Leu Asn  
225 230 235 240

Thr Cys Ile Ser His Ile Cys Ala Val Leu Thr Phe Tyr Thr Pro Met  
245 250 255

Ile Gly Leu Ser Met Ile His Arg Tyr Gly Gln Asn Ala Ser Ser Ile  
260 265 270

Val His Val Leu Met Ala Asn Val Tyr Leu Leu Val Pro Pro Leu Met  
275 280 285

Asn Pro Val Val Tyr Ser Val Lys Thr Lys Gln Ile Arg Asp Arg Ile  
290 295 300

Phe Asn Lys Phe Lys Lys His Glu Val  
305 310

<210>209  
<211>1004  
<212>DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222>(29) .. (968)  
<400>209

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Met Ser Ile Leu Asn Thr Ser Glu	
1 5	
atg gaa atc tct att ttc tac ttg gtt ggg atc cca ggt ttg gag cat	100
Met Glu Ile Ser Ile Phe Tyr Leu Val Gly Ile Pro Gly Leu Glu His	
10 15 20	
gcc aat att tgg atc tct atc ccc ata tgt ctc atg tac act gtt gct	148
Ala Asn Ile Trp Ile Ser Ile Pro Ile Cys Leu Met Tyr Thr Val Ala	
25 30 35 40	
atc cta ggg aat tgt acc att ctg ttt ttc ata aaa aca gag cct tct	196
Ile Leu Gly Asn Cys Thr Ile Leu Phe Phe Ile Lys Thr Glu Pro Ser	
45 50 55	
ttg cat gag ccc atg tac tat ttt ctc tcc atg ttg gct ctc tct gac	244
Leu His Glu Pro Met Tyr Tyr Phe Leu Ser Met Leu Ala Leu Ser Asp	
60 65 70	
ctg gga cta tcc ctc tcc tct ctc cct acc atg tta agg att ttc ctg	292
Leu Gly Leu Ser Leu Ser Ser Leu Pro Thr Met Leu Arg Ile Phe Leu	
75 80 85	
ttc aat gct cca gga att tcc cct gat gcc tgt att gct caa gag ttt	340
Phe Asn Ala Pro Gly Ile Ser Pro Asp Ala Cys Ile Ala Gln Glu Phe	
90 95 100	
ttc atc cat gga ttc tca gct atg gag tca tct gta ctt ctt ata atg	388
Phe Ile His Gly Phe Ser Ala Met Glu Ser Ser Val Leu Leu Ile Met	
105 110 115 120	
tcc ttt gat cgc ttt att gcc atc tgc aac ccc ctg aga tac act tcc	436
Ser Phe Asp Arg Phe Ile Ala Ile Cys Asn Pro Leu Arg Tyr Thr Ser	
125 130 135	

atc ctc acc agt gcc aga gtc att caa att ggg ctt gct ttt tct ctc	484
Ile Leu Thr Ser Ala Arg Val Ile Gln Ile Gly Leu Ala Phe Ser Leu	
140 145 150	
aaa aat gtt ttg ttg atc ctc cca ttt cct ttc act cta aaa cat cta	532
Lys Asn Val Leu Leu Ile Leu Pro Phe Pro Phe Thr Leu Lys His Leu	
155 160 165	
aaa tat tgt aag aag aac ctc ctg tcc caa tcc tac tgc ctc cat caa	580
Lys Tyr Cys Lys Lys Asn Leu Leu Ser Gln Ser Tyr Cys Leu His Gln	
170 175 180	
gat gtc atg aaa ctg gcc tgc act gac aac aag gtc aac atc atc tat	628
Asp Val Met Lys Leu Ala Cys Thr Asp Asn Lys Val Asn Ile Ile Tyr	
185 190 195 200	
ggc tta ttt gtg gct ctc aca ggc atc cta gac ttg aca ttt att ttc	676
Gly Leu Phe Val Ala Leu Thr Gly Ile Leu Asp Leu Thr Phe Ile Phe	
205 210 215	
atg tcc tac atg ttg ata ctg aaa gca gtg ttg agc ata gca tca aga	724
Met Ser Tyr Met Leu Ile Leu Lys Ala Val Leu Ser Ile Ala Ser Arg	
220 225 230	
aag aaa agg ctc aag gtc ctc aat aca tgt gtt tcc cac atc tgt gct	772
Lys Lys Arg Leu Lys Val Leu Asn Thr Cys Val Ser His Ile Cys Ala	
235 240 245	
gtg ctc atc ttc tat gtg ccc att atc tcc cta gct gtc atc tac cgg	820
Val Leu Ile Phe Tyr Val Pro Ile Ile Ser Leu Ala Val Ile Tyr Arg	
250 255 260	
ttt gcc aaa cac agt ttc cca atc act agg atc ctc ata gct gat gct	868
Phe Ala Lys His Ser Phe Pro Ile Thr Arg Ile Leu Ile Ala Asp Ala	
265 270 275 280	
ttt ctg ctg gtg cct cca ttg atg aac ccc att gta tac tgt gtg aag	916
Phe Leu Leu Val Pro Pro Leu Met Asn Pro Ile Val Tyr Cys Val Lys	
285 290 295	
agc cag cag ata aga aat ctt gtc tta gaa aaa ctg tgc cag aag caa	964
Ser Gln Gln Ile Arg Asn Leu Val Leu Glu Lys Leu Cys Gln Lys Gln	
300 305 310	
agc tgaagcggat gcttaaccac atgatgctta acccaaa	1004
Ser	

<210>210

<211>313

<212>PRT

<213> Homo sapiens

<400>210

Met Ser Ile Leu Asn Thr Ser Glu Met Glu Ile Ser Ile Phe Tyr Leu
1 5 10 15



Val Gly Ile Pro Gly Leu Glu His Ala Asn Ile Trp Ile Ser Ile Pro  
20 25 30  
Ile Cys Leu Met Tyr Thr Val Ala Ile Leu Gly Asn Cys Thr Ile Leu  
35 40 45  
Phe Phe Ile Lys Thr Glu Pro Ser Leu His Glu Pro Met Tyr Tyr Phe  
50 55 60  
Leu Ser Met Leu Ala Leu Ser Asp Leu Gly Leu Ser Leu Ser Ser Leu  
65 70 75 80  
Pro Thr Met Leu Arg Ile Phe Leu Phe Asn Ala Pro Gly Ile Ser Pro  
85 90 95  
Asp Ala Cys Ile Ala Gln Glu Phe Phe Ile His Gly Phe Ser Ala Met  
100 105 110  
Glu Ser Ser Val Leu Leu Ile Met Ser Phe Asp Arg Phe Ile Ala Ile  
115 120 125  
Cys Asn Pro Leu Arg Tyr Thr Ser Ile Leu Thr Ser Ala Arg Val Ile  
130 135 140  
Gln Ile Gly Leu Ala Phe Ser Leu Lys Asn Val Leu Leu Ile Leu Pro  
145 150 155 160  
Phe Pro Phe Thr Leu Lys His Leu Lys Tyr Cys Lys Lys Asn Leu Leu  
165 170 175  
Ser Gln Ser Tyr Cys Leu His Gln Asp Val Met Lys Leu Ala Cys Thr  
180 185 190  
Asp Asn Lys Val Asn Ile Ile Tyr Gly Leu Phe Val Ala Leu Thr Gly  
195 200 205  
Ile Leu Asp Leu Thr Phe Ile Phe Met Ser Tyr Met Leu Ile Leu Lys  
210 215 220  
Ala Val Leu Ser Ile Ala Ser Arg Lys Lys Arg Leu Lys Val Leu Asn  
225 230 235 240  
Thr Cys Val Ser His Ile Cys Ala Val Leu Ile Phe Tyr Val Pro Ile  
245 250 255  
Ile Ser Leu Ala Val Ile Tyr Arg Phe Ala Lys His Ser Phe Pro Ile  
260 265 270  
Thr Arg Ile Leu Ile Ala Asp Ala Phe Leu Leu Val Pro Pro Leu Met  
275 280 285  
Asn Pro Ile Val Tyr Cys Val Lys Ser Gln Gln Ile Arg Asn Leu Val  
290 295 300  
Leu Glu Lys Leu Cys Gln Lys Gln Ser  
305 310

<210>211  
 <211>1581  
 <212>DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222>(97) .. (1555)  
 <400>211

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ctggtgggtt ggcggctaag gggcggagac aagaggggcc gccaccatct      50

cctccaatgg aagggagaca gggcggggct taatgacgga aggagc atg gcg tgg      105
                               Met Ala Trp

aga cac ctg aaa aag cgg gcc cag gat gct gtg atc atc ctg ggg gga      153
Arg His Leu Lys Lys Arg Ala Gln Asp Ala Val Ile Ile Leu Gly Gly
      5                10                15

gga gga ctt ctc ttc gcc tcc tac ctg atg gcc acg gga gat gag cgt      201
Gly Gly Leu Leu Phe Ala Ser Tyr Leu Met Ala Thr Gly Asp Glu Arg
      20                25                30                35

ttc tat gct gaa cac ctg atg ccg act ctg cag ggg ctg ctg gac ccg      249
Phe Tyr Ala Glu His Leu Met Pro Thr Leu Gln Gly Leu Leu Asp Pro
              40                45                50

gag tca gcc cac aga ctg gct gtt cgc ttc acc tcc ctg ggg ctc ctt      297
Glu Ser Ala His Arg Leu Ala Val Arg Phe Thr Ser Leu Gly Leu Leu
              55                60                65

cca cgg gcc aga ttt caa gac tct gac atg ctg gaa gtg aga gtt ctg      345
Pro Arg Ala Arg Phe Gln Asp Ser Asp Met Leu Glu Val Arg Val Leu
              70                75                80

ggc cat aaa ttc cga aat cca gta gga att gct gca gga ttt gac aag      393
Gly His Lys Phe Arg Asn Pro Val Gly Ile Ala Ala Gly Phe Asp Lys
              85                90                95

cat ggg gaa gcc gtg gac gga ctt tat aag atg ggc ttt ggt ttt gtt      441
His Gly Glu Ala Val Asp Gly Leu Tyr Lys Met Gly Phe Gly Phe Val
      100                105                110                115

gag ata gga agt gtg act cca aaa cct cag gaa gga aac cct aga ccc      489
Glu Ile Gly Ser Val Thr Pro Lys Pro Gln Glu Gly Asn Pro Arg Pro
              120                125                130

aga gtc ttc cgc ctc cct gag gac caa gct gtc att aac agg tat gga      537
Arg Val Phe Arg Leu Pro Glu Asp Gln Ala Val Ile Asn Arg Tyr Gly
              135                140                145

ttt aac agt cac ggg ctt tca gtg gtg gaa cac agg tta cgg gcc aga      585
Phe Asn Ser His Gly Leu Ser Val Glu His Arg Leu Arg Ala Arg
              150                155                160

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cag cag aag cag gcc aag ctc aca gaa gat gga ctg cct ctg ggg gtc 633  
Gln Gln Lys Gln Ala Lys Leu Thr Glu Asp Gly Leu Pro Leu Gly Val  
165 170 175

aac ttg ggg aag aac aag acc tca gtg gac gcc gcg gag gac tac gca 681  
Asn Leu Gly Lys Asn Lys Thr Ser Val Asp Ala Ala Glu Asp Tyr Ala  
180 185 190 195

gaa ggg gtg cgc gta ctg ggc ccc ctg gcc gac tac ctg gtg gtg aat 729  
Glu Gly Val Arg Val Leu Gly Pro Leu Ala Asp Tyr Leu Val Val Asn  
200 205 210

gtg tcc agc ccc aac act gcc ggg ctg cgg agc ctt cag gga aag gcc 777  
Val Ser Ser Pro Asn Thr Ala Gly Leu Arg Ser Leu Gln Gly Lys Ala  
215 220 225

gag ctg cgc cgc ctg ctg acc aag gtg ctg cag gag agg gat ggc ttg 825  
Glu Leu Arg Arg Leu Leu Thr Lys Val Leu Gln Glu Arg Asp Gly Leu  
230 235 240

cgg aga gtg cac agg ccg gca gtc ctg gtg aag atc gct cct gac ctc 873  
Arg Arg Val His Arg Pro Ala Val Leu Val Lys Ile Ala Pro Asp Leu  
245 250 255

acc agc cag gat aag gag gac att gcc agt gtg gtc aaa gag ttg ggc 921  
Thr Ser Gln Asp Lys Glu Asp Ile Ala Ser Val Val Lys Glu Leu Gly  
260 265 270 275

atc gat ggg ctg att gtt acg aac acc acc gtg agt cgc cct gcg ggc 969  
Ile Asp Gly Leu Ile Val Thr Asn Thr Thr Val Ser Arg Pro Ala Gly  
280 285 290

ctc cag ggt gcc ctg cgc tct gaa aca gga ggg ctg agt ggg aag ccc 1017  
Leu Gln Gly Ala Leu Arg Ser Glu Thr Gly Gly Leu Ser Gly Lys Pro  
295 300 305

ctc cgg gat tta tca act caa acc att cgg gag atg tat gca ctc acc 1065  
Leu Arg Asp Leu Ser Thr Gln Thr Ile Arg Glu Met Tyr Ala Leu Thr  
310 315 320

caa ggc aag gtt tcc cgt cga gtt ccc ata att ggg gtt ggt ggt gtg 1113  
Gln Gly Lys Val Ser Arg Arg Val Pro Ile Ile Gly Val Gly Gly Val  
325 330 335

agc agc ggg cag gac gcg ctg gag aag atc cgg gca ggg gcc tcc ctg 1161  
Ser Ser Gly Gln Asp Ala Leu Glu Lys Ile Arg Ala Gly Ala Ser Leu  
340 345 350 355

gtg cag ctg tac acg gcc ctc acc ttc tgg ggg cca ccc gtt gtg ggc 1209  
Val Gln Leu Tyr Thr Ala Leu Thr Phe Trp Gly Pro Pro Val Val Gly  
360 365 370

aaa gtc aag cgg gaa ctg gag gcc ctt ctg aag gag cag ggc ttt ggc 1257  
Lys Val Lys Arg Glu Leu Glu Ala Leu Leu Lys Glu Gln Gly Phe Gly  
375 380 385

gga gtc aca gat gcc att gga gca gat cat cgg agg atg agg aaa cgg 1305

Gly Val Thr Asp Ala Ile Gly Ala Asp His Arg Arg Met Arg Lys Arg  
 390 395 400

gca gag aag cgg ctg att gtc cag tcc ccc tgc gtg gag gct gct tgg 1353  
 Ala Glu Lys Arg Leu Ile Val Gln Ser Pro Cys Val Glu Ala Ala Trp  
 405 410 415

ctg ggc tcg agc cca gcg gtg gtg ggt cag ttg gga cct ggt ggt ctg 1401  
 Leu Gly Ser Ser Pro Ala Val Val Gly Gln Leu Gly Pro Gly Gly Leu  
 420 425 430 435

ctg gtg gtc agt ttg gga att tcc agg tac gat tgt ttt cag gca ctg 1449  
 Leu Val Val Ser Leu Gly Ile Ser Arg Tyr Asp Cys Phe Gln Ala Leu  
 440 445 450

ttc ttt gac ttg gtt gca gaa aaa cag att ttg caa cac ttt cca agg 1497  
 Phe Phe Asp Leu Val Ala Glu Lys Gln Ile Leu Gln His Phe Pro Arg  
 455 460 465

aca cag tgt tac cac tcc ctc acc ctg cca tgg cct ctt ggt tct gct 1545  
 Thr Gln Cys Tyr His Ser Leu Thr Leu Pro Trp Pro Leu Gly Ser Ala  
 470 475 480

ttt aac ttc tgagcctcag ggagtccatc ttgtctg 1581  
 Phe Asn Phe  
 485

<210>212  
 <211>486  
 <212>PRT  
 <213> Homo sapiens

<400>212  
 Met Ala Trp Arg His Leu Lys Lys Arg Ala Gln Asp Ala Val Ile Ile  
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Leu Gly Gly Gly Gly Leu Leu Phe Ala Ser Tyr Leu Met Ala Thr Gly  
 20 25 30

Asp Glu Arg Phe Tyr Ala Glu His Leu Met Pro Thr Leu Gln Gly Leu  
 35 40 45

Leu Asp Pro Glu Ser Ala His Arg Leu Ala Val Arg Phe Thr Ser Leu  
 50 55 60

Gly Leu Leu Pro Arg Ala Arg Phe Gln Asp Ser Asp Met Leu Glu Val  
 65 70 75 80

Arg Val Leu Gly His Lys Phe Arg Asn Pro Val Gly Ile Ala Ala Gly  
 85 90 95

Phe Asp Lys His Gly Glu Ala Val Asp Gly Leu Tyr Lys Met Gly Phe  
 100 105 110

Gly Phe Val Glu Ile Gly Ser Val Thr Pro Lys Pro Gln Glu Gly Asn  
 115 120 125

Pro Arg Pro Arg Val Phe Arg Leu Pro Glu Asp Gln Ala Val Ile Asn  
 130 135 140  
 Arg Tyr Gly Phe Asn Ser His Gly Leu Ser Val Val Glu His Arg Leu  
 145 150 155 160  
 Arg Ala Arg Gln Gln Lys Gln Ala Lys Leu Thr Glu Asp Gly Leu Pro  
 165 170 175  
 Leu Gly Val Asn Leu Gly Lys Asn Lys Thr Ser Val Asp Ala Ala Glu  
 180 185 190  
 Asp Tyr Ala Glu Gly Val Arg Val Leu Gly Pro Leu Ala Asp Tyr Leu  
 195 200 205  
 Val Val Asn Val Ser Ser Pro Asn Thr Ala Gly Leu Arg Ser Leu Gln  
 210 215 220  
 Gly Lys Ala Glu Leu Arg Arg Leu Leu Thr Lys Val Leu Gln Glu Arg  
 225 230 235 240  
 Asp Gly Leu Arg Arg Val His Arg Pro Ala Val Leu Val Lys Ile Ala  
 245 250 255  
 Pro Asp Leu Thr Ser Gln Asp Lys Glu Asp Ile Ala Ser Val Val Lys  
 260 265 270  
 Glu Leu Gly Ile Asp Gly Leu Ile Val Thr Asn Thr Thr Val Ser Arg  
 275 280 285  
 Pro Ala Gly Leu Gln Gly Ala Leu Arg Ser Glu Thr Gly Gly Leu Ser  
 290 295 300  
 Gly Lys Pro Leu Arg Asp Leu Ser Thr Gln Thr Ile Arg Glu Met Tyr  
 305 310 315 320  
 Ala Leu Thr Gln Gly Lys Val Ser Arg Arg Val Pro Ile Ile Gly Val  
 325 330 335  
 Gly Gly Val Ser Ser Gly Gln Asp Ala Leu Glu Lys Ile Arg Ala Gly  
 340 345 350  
 Ala Ser Leu Val Gln Leu Tyr Thr Ala Leu Thr Phe Trp Gly Pro Pro  
 355 360 365  
 Val Val Gly Lys Val Lys Arg Glu Leu Glu Ala Leu Leu Lys Glu Gln  
 370 375 380  
 Gly Phe Gly Gly Val Thr Asp Ala Ile Gly Ala Asp His Arg Arg Met  
 385 390 395 400  
 Arg Lys Arg Ala Glu Lys Arg Leu Ile Val Gln Ser Pro Cys Val Glu  
 405 410 415  
 Ala Ala Trp Leu Gly Ser Ser Pro Ala Val Val Gly Gln Leu Gly Pro  
 420 425 430

Gly Gly Leu Leu Val Val Ser Leu Gly Ile Ser Arg Tyr Asp Cys Phe  
435 440 445

Gln Ala Leu Phe Phe Asp Leu Val Ala Glu Lys Gln Ile Leu Gln His  
450 455 460

Phe Pro Arg Thr Gln Cys Tyr His Ser Leu Thr Leu Pro Trp Pro Leu  
465 470 475 480

Gly Ser Ala Phe Asn Phe  
485

<210>213

<211>1875

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(1)..(1873)

<400>213

atg gcc gca gcc tcg cct ctg cgc gac tgc cag gcc tgg aag gat gcg 48  
Met Ala Ala Ala Ser Pro Leu Arg Asp Cys Gln Ala Trp Lys Asp Ala  
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agg ctc ccg ctc tcc acc aca agc aac gaa gcc tgc aag ctg ttc gat 96  
Arg Leu Pro Leu Ser Thr Thr Ser Asn Glu Ala Cys Lys Leu Phe Asp  
20 25 30

gcc acg ctg acc cag tat gta aaa tgg acc aat gac aag agt ctc ggt 144  
Ala Thr Leu Thr Gln Tyr Val Lys Trp Thr Asn Asp Lys Ser Leu Gly  
35 40 45

ggc atc gag ggc tgc ctg tca aag ctc aaa gca gca gat cca acc ttt 192  
Gly Ile Glu Gly Cys Leu Ser Lys Leu Lys Ala Ala Asp Pro Thr Phe  
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gtg atg ggc cac gcc atg gct act ggc ctt gtg ctg att ggc act gga 240  
Val Met Gly His Ala Met Ala Thr Gly Leu Val Leu Ile Gly Thr Gly  
65 70 75 80

agc tcc gtg aag ctg gac aaa gag ctg gac ctg gct gtg aag aca atg 288  
Ser Ser Val Lys Leu Asp Lys Glu Leu Asp Leu Ala Val Lys Thr Met  
85 90 95

gtg gag att tca aga acc cag ccg ctg aca agg cgg gag cag ctg cac 336  
Val Glu Ile Ser Arg Thr Gln Pro Leu Thr Arg Arg Glu Gln Leu His  
100 105 110

gtg tct gca gta gag aca ttt gcc aat ggg aac ttt ccg aaa gcc tgt 384  
Val Ser Ala Val Glu Thr Phe Ala Asn Gly Asn Phe Pro Lys Ala Cys  
115 120 125

gaa cta tgg gaa cag att ctc cag gac cac ccg aca gac atg ttg gcc 432  
Glu Leu Trp Glu Gln Ile Leu Gln Asp His Pro Thr Asp Met Leu Ala  
130 135 140

ctg aaa ttt tcc cat gat gct tat ttt tac ctg ggc tat cag gaa cag	480
Leu Lys Phe Ser His Asp Ala Tyr Phe Tyr Leu Gly Tyr Gln Glu Gln	
145 150 155 160	
atg aga gat tct gtt gct cga att tac ccc ttc tgg aca cct gac atc	528
Met Arg Asp Ser Val Ala Arg Ile Tyr Pro Phe Trp Thr Pro Asp Ile	
165 170 175	
ccc cta agc agc tat gtg aaa ggc atc tac tct ttt ggc ttg atg gaa	576
Pro Leu Ser Ser Tyr Val Lys Gly Ile Tyr Ser Phe Gly Leu Met Glu	
180 185 190	
acc aac ttc tac gac cag gca gaa aaa ctc gcc aaa gag gca cca act	624
Thr Asn Phe Tyr Asp Gln Ala Glu Lys Leu Ala Lys Glu Ala Pro Thr	
195 200 205	
ctt tgt ctt caa cac cag cac ccc aca gac aac tac tgg gca gga aaa	672
Leu Cys Leu Gln His Gln His Pro Thr Asp Asn Tyr Trp Ala Gly Lys	
210 215 220	
gca ggc tgt gat ggg gcc agg agt ggt aac aca tgg gct ctg tgt ctg	720
Ala Gly Cys Asp Gly Ala Arg Ser Gly Asn Thr Trp Ala Leu Cys Leu	
225 230 235 240	
cag ccc cag gct gac gca tgg tcg gtg cac acc gtc gct cac atc cac	768
Gln Pro Gln Ala Asp Ala Trp Ser Val His Thr Val Ala His Ile His	
245 250 255	
gag atg aaa gca gag atc aag gat ggg ttg gaa ttc atg cag cac tca	816
Glu Met Lys Ala Glu Ile Lys Asp Gly Leu Glu Phe Met Gln His Ser	
260 265 270	
gag acc ttc tgg aag gac tct gat atg ttg gct tgt cat aac tat tgg	864
Glu Thr Phe Trp Lys Asp Ser Asp Met Leu Ala Cys His Asn Tyr Trp	
275 280 285	
cac tgg gct tta tat ctg att gag aag ggt tta ata agg aga act tta	912
His Trp Ala Leu Tyr Leu Ile Glu Lys Gly Leu Ile Arg Arg Thr Leu	
290 295 300	
ttc ttc cag ggc gaa tat gag gcc gcg ctg acc atc tac gat acc cac	960
Phe Phe Gln Gly Glu Tyr Glu Ala Ala Leu Thr Ile Tyr Asp Thr His	
305 310 315 320	
atc ctt ccc agc ctg cag gcc aac gat gca atg ctg gac gtg gtg gac	1008
Ile Leu Pro Ser Leu Gln Ala Asn Asp Ala Met Leu Asp Val Val Asp	
325 330 335	
agc tgc tcc atg ctc tac cgc ctg cag atg gaa gga gtg tct gtg ggc	1056
Ser Cys Ser Met Leu Tyr Arg Leu Gln Met Glu Gly Val Ser Val Gly	
340 345 350	
cag cgg tgg cag gat gtc ctg cct gtg gcc cgg aag cac agc cga gac	1104
Gln Arg Trp Gln Asp Val Leu Pro Val Ala Arg Lys His Ser Arg Asp	
355 360 365	
cac atc ctg ctg ttc aat gac gca cac ttc ctg atg gca tcc ctg ggt	1152

His	Ile	Leu	Leu	Phe	Asn	Asp	Ala	His	Phe	Leu	Met	Ala	Ser	Leu	Gly		
370						375					380						
gca	cac	gac	ccc	cag	acc	aca	cag	gag	ctg	ctg	acc	acc	ctg	cgg	gac	1200	
Ala	His	Asp	Pro	Gln	Thr	Thr	Gln	Glu	Leu	Leu	Thr	Thr	Leu	Arg	Asp		
385				390					395					400			
gcc	agc	gag	tat	gca	gag	ggg	cct	tct	cgg	ggg	ggg	ggg	cct	cac	cct	1248	
Ala	Ser	Glu	Tyr	Ala	Glu	Gly	Pro	Ser	Arg	Gly	Gly	Gly	Pro	His	Pro		
				405					410					415			
gcc	gag	agg	tgc	cag	gcc	ttt	gcc	tgt	att	atc	agc	aat	cct	gac	ggg	1296	
Ala	Glu	Arg	Cys	Gln	Ala	Phe	Ala	Cys	Ile	Ile	Ser	Asn	Pro	Asp	Gly		
			420				425						430				
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Ser	Val	Arg	Leu	Ala	Leu	Leu	Cys	Leu	Leu	Thr	Asp	Glu	Gln	Thr	Glu		
		435					440					445					
gct	gga	aga	tcc	cca	ggg	gag	aac	tgc	cag	cac	ctc	ctg	gcc	cga	gac	1392	
Ala	Gly	Arg	Ser	Pro	Gly	Glu	Asn	Cys	Gln	His	Leu	Leu	Ala	Arg	Asp		
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gtg	ggg	ctg	ccc	ctg	tgc	cag	gcc	ctg	gtg	gag	gct	gag	gac	ggg	aac	1440	
Val	Gly	Leu	Pro	Leu	Cys	Gln	Ala	Leu	Val	Glu	Ala	Glu	Asp	Gly	Asn		
465				470					475					480			
cct	gac	cgc	gtc	ctg	gag	ctg	ctc	ctg	ccc	atc	cgc	tac	cgg	atc	gtc	1488	
Pro	Asp	Arg	Val	Leu	Glu	Leu	Leu	Leu	Pro	Ile	Arg	Tyr	Arg	Ile	Val		
			485						490					495			
cag	ctc	ggg	ggg	agc	aat	gcc	cag	aga	gac	gtc	ttc	aac	cag	ctg	ctg	1536	
Gln	Leu	Gly	Gly	Ser	Asn	Ala	Gln	Arg	Asp	Val	Phe	Asn	Gln	Leu	Leu		
			500					505					510				
att	cac	gcg	gcc	tta	aac	tgc	acc	tcc	agc	gtc	cat	aag	aac	gta	gcc	1584	
Ile	His	Ala	Ala	Leu	Asn	Cys	Thr	Ser	Ser	Val	His	Lys	Asn	Val	Ala		
		515				520						525					
cgg	agc	ctt	ctg	atg	gag	cgt	gat	gcc	ttg	aag	ccc	aac	tcg	ccc	ctg	1632	
Arg	Ser	Leu	Leu	Met	Glu	Arg	Asp	Ala	Leu	Lys	Pro	Asn	Ser	Pro	Leu		
		530				535					540						
acc	gag	cgg	ctc	atc	cgc	aag	gca	gct	acc	gtc	cac	ctc	atg	cag	aag	1680	
Thr	Glu	Arg	Leu	Ile	Arg	Lys	Ala	Ala	Thr	Val	His	Leu	Met	Gln	Lys		
		545				550				555				560			
cct	tct	acc	cgc	caa	ccc	cca	ctg	cag	gct	gct	ctc	tcc	atg	gaa	gga	1728	
Pro	Ser	Thr	Arg	Gln	Pro	Pro	Leu	Gln	Ala	Ala	Leu	Ser	Met	Glu	Gly		
			565					570						575			
ggc	ggc	ggc	cgc	gat	gag	cct	tca	gcc	tgc	cgg	gca	ggg	gac	gtg	aac	1776	
Gly	Gly	Gly	Arg	Asp	Glu	Pro	Ser	Ala	Cys	Arg	Ala	Gly	Asp	Val	Asn		
			580					585					590				
atg	gat	gac	cct	aag	aag	gaa	ggc	aag	tcc	ttg	ctg	ctg	cgg	cgc	tgt	1824	
Met	Asp	Asp	Pro	Lys	Lys	Glu	Gly	Lys	Ser	Leu	Leu	Leu	Arg	Arg	Cys		



595	600	605	
tgt tgt tca gga tgt tca gta gag atg gag ggt gat tta atg ttt ccc	1872		
Cys Cys Ser Gly Cys Ser Val Glu Met Glu Gly Asp Leu Met Phe Pro			
610	615	620	

tga 1875

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 Ala Thr Leu Thr Gln Tyr Val Lys Trp Thr Asn Asp Lys Ser Leu Gly  
 35 40 45  
 Gly Ile Glu Gly Cys Leu Ser Lys Leu Lys Ala Ala Asp Pro Thr Phe  
 50 55 60  
 Val Met Gly His Ala Met Ala Thr Gly Leu Val Leu Ile Gly Thr Gly  
 65 70 75 80  
 Ser Ser Val Lys Leu Asp Lys Glu Leu Asp Leu Ala Val Lys Thr Met  
 85 90 95  
 Val Glu Ile Ser Arg Thr Gln Pro Leu Thr Arg Arg Glu Gln Leu His  
 100 105 110  
 Val Ser Ala Val Glu Thr Phe Ala Asn Gly Asn Phe Pro Lys Ala Cys  
 115 120 125  
 Glu Leu Trp Glu Gln Ile Leu Gln Asp His Pro Thr Asp Met Leu Ala  
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 Leu Lys Phe Ser His Asp Ala Tyr Phe Tyr Leu Gly Tyr Gln Glu Gln  
 145 150 155 160  
 Met Arg Asp Ser Val Ala Arg Ile Tyr Pro Phe Trp Thr Pro Asp Ile  
 165 170 175  
 Pro Leu Ser Ser Tyr Val Lys Gly Ile Tyr Ser Phe Gly Leu Met Glu  
 180 185 190  
 Thr Asn Phe Tyr Asp Gln Ala Glu Lys Leu Ala Lys Glu Ala Pro Thr  
 195 200 205  
 Leu Cys Leu Gln His Gln His Pro Thr Asp Asn Tyr Trp Ala Gly Lys  
 210 215 220

Ala Gly Cys Asp Gly Ala Arg Ser Gly Asn Thr Trp Ala Leu Cys Leu  
 225 230 235 240  
 Gln Pro Gln Ala Asp Ala Trp Ser Val His Thr Val Ala His Ile His  
 245 250 255  
 Glu Met Lys Ala Glu Ile Lys Asp Gly Leu Glu Phe Met Gln His Ser  
 260 265 270  
 Glu Thr Phe Trp Lys Asp Ser Asp Met Leu Ala Cys His Asn Tyr Trp  
 275 280 285  
 His Trp Ala Leu Tyr Leu Ile Glu Lys Gly Leu Ile Arg Arg Thr Leu  
 290 295 300  
 Phe Phe Gln Gly Glu Tyr Glu Ala Ala Leu Thr Ile Tyr Asp Thr His  
 305 310 315 320  
 Ile Leu Pro Ser Leu Gln Ala Asn Asp Ala Met Leu Asp Val Val Asp  
 325 330 335  
 Ser Cys Ser Met Leu Tyr Arg Leu Gln Met Glu Gly Val Ser Val Gly  
 340 345 350  
 Gln Arg Trp Gln Asp Val Leu Pro Val Ala Arg Lys His Ser Arg Asp  
 355 360 365  
 His Ile Leu Leu Phe Asn Asp Ala His Phe Leu Met Ala Ser Leu Gly  
 370 375 380  
 Ala His Asp Pro Gln Thr Thr Gln Glu Leu Leu Thr Thr Leu Arg Asp  
 385 390 395 400  
 Ala Ser Glu Tyr Ala Glu Gly Pro Ser Arg Gly Gly Gly Pro His Pro  
 405 410 415  
 Ala Glu Arg Cys Gln Ala Phe Ala Cys Ile Ile Ser Asn Pro Asp Gly  
 420 425 430  
 Ser Val Arg Leu Ala Leu Leu Cys Leu Leu Thr Asp Glu Gln Thr Glu  
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 Ala Gly Arg Ser Pro Gly Glu Asn Cys Gln His Leu Leu Ala Arg Asp  
 450 455 460  
 Val Gly Leu Pro Leu Cys Gln Ala Leu Val Glu Ala Glu Asp Gly Asn  
 465 470 475 480  
 Pro Asp Arg Val Leu Glu Leu Leu Leu Pro Ile Arg Tyr Arg Ile Val  
 485 490 495  
 Gln Leu Gly Gly Ser Asn Ala Gln Arg Asp Val Phe Asn Gln Leu Leu  
 500 505 510  
 Ile His Ala Ala Leu Asn Cys Thr Ser Ser Val His Lys Asn Val Ala  
 515 520 525

Arg Ser Leu Leu Met Glu Arg Asp Ala Leu Lys Pro Asn Ser Pro Leu  
530 535 540

Thr Glu Arg Leu Ile Arg Lys Ala Ala Thr Val His Leu Met Gln Lys  
545 550 555 560

Pro Ser Thr Arg Gln Pro Pro Leu Gln Ala Ala Leu Ser Met Glu Gly  
565 570 575

Gly Gly Gly Arg Asp Glu Pro Ser Ala Cys Arg Ala Gly Asp Val Asn  
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Met Asp Asp Pro Lys Lys Glu Gly Lys Ser Leu Leu Leu Arg Arg Cys  
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Cys Cys Ser Gly Cys Ser Val Glu Met Glu Gly Asp Leu Met Phe Pro  
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ggc tta cca gac tta gtg act gaa agc ctg ttc agc agc cca gag gag 99  
Gly Leu Pro Asp Leu Val Thr Glu Ser Leu Phe Ser Ser Pro Glu Glu  
10 15 20 25

cag tct gga gta gca gcg gtg acg gcg gcc tcc tca gac att gaa atg 147  
Gln Ser Gly Val Ala Ala Val Thr Ala Ala Ser Ser Asp Ile Glu Met  
30 35 40

gca gcc aca gag cca tcg acc gga gat ggt ggt gat acc agg gat ggt 195  
Ala Ala Thr Glu Pro Ser Thr Gly Asp Gly Gly Asp Thr Arg Asp Gly  
45 50 55

ggt ttc ctg aac gat gcc agc aca gaa aat caa aac aca gac tca gaa 243  
Gly Phe Leu Asn Asp Ala Ser Thr Glu Asn Gln Asn Thr Asp Ser Glu  
60 65 70

agt tca agt gaa gac gtc gaa ctt gaa agc atg ggt gaa ggt tta ttt 291  
Ser Ser Ser Glu Asp Val Glu Leu Glu Ser Met Gly Glu Gly Leu Phe  
75 80 85

ggt tac ccg tta gtg gga gag gag aca gaa agg gag gag gaa gaa gaa 339  
Gly Tyr Pro Leu Val Gly Glu Glu Thr Glu Arg Glu Glu Glu Glu Glu  
90 95 100 105

gag atg gag gag gaa ggg gag gag gaa gaa cag cct cgg atg tgt cca 387

Glu	Met	Glu	Glu	Glu	Gly	Glu	Glu	Glu	Glu	Gln	Pro	Arg	Met	Cys	Pro	
				110					115					120		
cga	tgc	ggt	ggc	acc	aac	cat	gat	cag	tgt	ttg	tta	gac	gag	gat	cag	435
Arg	Cys	Gly	Gly	Thr	Asn	His	Asp	Gln	Cys	Leu	Leu	Asp	Glu	Asp	Gln	
			125					130					135			
gcg	ttg	gag	gag	tgg	att	tcc	tca	gag	aca	tct	gcc	ctg	ccc	cga	tct	483
Ala	Leu	Glu	Glu	Trp	Ile	Ser	Ser	Glu	Thr	Ser	Ala	Leu	Pro	Arg	Ser	
			140				145					150				
cgc	tgg	caa	gtc	ctt	act	gct	ctt	cgc	cag	cgg	cag	ctg	ggg	tca	agt	531
Arg	Trp	Gln	Val	Leu	Thr	Ala	Leu	Arg	Gln	Arg	Gln	Leu	Gly	Ser	Ser	
			155				160				165					
gcc	cgc	ttt	gta	tat	gag	gcc	tgt	ggg	gca	aga	acc	ttt	gtg	cag	cgt	579
Ala	Arg	Phe	Val	Tyr	Glu	Ala	Cys	Gly	Ala	Arg	Thr	Phe	Val	Gln	Arg	
					175					180					185	
ttc	cgc	ctg	cag	tat	ctt	ctt	gga	agc	cat	gcc	ggg	tct	gtc	agt	acc	627
Phe	Arg	Leu	Gln	Tyr	Leu	Leu	Gly	Ser	His	Ala	Gly	Ser	Val	Ser	Thr	
				190					195				200			
ata	cac	ttt	aac	cag	cgt	ggc	acc	cga	ctg	gcc	agt	agc	ggg	gat	gac	675
Ile	His	Phe	Asn	Gln	Arg	Gly	Thr	Arg	Leu	Ala	Ser	Ser	Gly	Asp	Asp	
			205					210					215			
tta	agg	gtg	ata	gtg	tgg	gac	tgg	gtg	cgg	cag	aag	cca	gta	ctg	aac	723
Leu	Arg	Val	Ile	Val	Trp	Asp	Trp	Val	Arg	Gln	Lys	Pro	Val	Leu	Asn	
			220				225					230				
ttt	gag	agt	ggg	cac	gat	att	aat	gtc	atc	cag	gct	aag	ttc	ttt	cct	771
Phe	Glu	Ser	Gly	His	Asp	Ile	Asn	Val	Ile	Gln	Ala	Lys	Phe	Phe	Pro	
			235			240				245						
aac	tgt	ggg	gat	tcc	act	ctg	gcc	atg	tgt	ggc	cat	gat	gga	cag	gta	819
Asn	Cys	Gly	Asp	Ser	Thr	Leu	Ala	Met	Cys	Gly	His	Asp	Gly	Gln	Val	
					255					260					265	
cgg	gta	gca	gaa	cta	att	aat	gca	tca	tat	tgc	gag	aat	act	aag	cgt	867
Arg	Val	Ala	Glu	Leu	Ile	Asn	Ala	Ser	Tyr	Cys	Glu	Asn	Thr	Lys	Arg	
				270					275				280			
gtg	gcc	aag	cac	agg	gga	cct	gcc	cac	gag	ttg	gct	ctg	gag	cca	gac	915
Val	Ala	Lys	His	Arg	Gly	Pro	Ala	His	Glu	Leu	Ala	Leu	Glu	Pro	Asp	
			285					290					295			
tct	cct	tat	aag	ttc	ctc	act	tca	ggg	gaa	gat	gcc	gtt	gtg	ttc	acc	963
Ser	Pro	Tyr	Lys	Phe	Leu	Thr	Ser	Gly	Glu	Asp	Ala	Val	Val	Phe	Thr	
			300				305					310				
att	gac	ctc	agg	caa	gac	cgg	cca	gct	tca	aaa	gtt	gtg	gta	aca	aga	1011
Ile	Asp	Leu	Arg	Gln	Asp	Arg	Pro	Ala	Ser	Lys	Val	Val	Val	Thr	Arg	</

330	335	340	345	
aat att tac caa ttt gca gtg ggt gga cat gat cag ttt gta agg att				1107
Asn Ile Tyr Gln Phe Ala Val Gly Gly His Asp Gln Phe Val Arg Ile				
	350	355	360	
tat gac cag agg aga att gat aag aaa gaa aac aat gga gta ctc aag				1155
Tyr Asp Gln Arg Arg Ile Asp Lys Lys Glu Asn Asn Gly Val Leu Lys				
	365	370	375	
aaa ttc act cct cat cat ctg gtt tat tgt gat ttc cca aca aac atc				1203
Lys Phe Thr Pro His His Leu Val Tyr Cys Asp Phe Pro Thr Asn Ile				
	380	385	390	
acc tgc gtt gtg tac agc cac gat ggc aca gag ctc ctg gcc agc tac				1251
Thr Cys Val Val Tyr Ser His Asp Gly Thr Glu Leu Leu Ala Ser Tyr				
	395	400	405	
aat gat gaa gat att tac ctc ttc aac tcc tct ctc agt gat ggt gct				1299
Asn Asp Glu Asp Ile Tyr Leu Phe Asn Ser Ser Leu Ser Asp Gly Ala				
	410	415	420	425
caa tat gtt aag aga tat aag ggg cac aga aat aat gac aca atc aaa				1347
Gln Tyr Val Lys Arg Tyr Lys Gly His Arg Asn Asn Asp Thr Ile Lys				
	430	435	440	
tgt gtt aat ttc tat ggc ccc cgg agt gag ttt gtc gtg agc ggt agt				1395
Cys Val Asn Phe Tyr Gly Pro Arg Ser Glu Phe Val Val Ser Gly Ser				
	445	450	455	
gat tgt ggg cac gtc ttc ttc tgg gag aaa tca tcc tcc cag atc atc				1443
Asp Cys Gly His Val Phe Phe Trp Glu Lys Ser Ser Ser Gln Ile Ile				
	460	465	470	
cag ttc atg gag ggg gac aga gga gat ata gta aac tgt ctt gaa ccc				1491
Gln Phe Met Glu Gly Asp Arg Gly Asp Ile Val Asn Cys Leu Glu Pro				
	475	480	485	
cac cct tac cta cct gtg ttg gcg acc agt ggc cta gat cag cat gtc				1539
His Pro Tyr Leu Pro Val Leu Ala Thr Ser Gly Leu Asp Gln His Val				
	490	495	500	505
agg atc tgg aca ccc aca gct aaa act gcc act gag ctt act ggg tta				1587
Arg Ile Trp Thr Pro Thr Ala Lys Thr Ala Thr Glu Leu Thr Gly Leu				
	510	515	520	
aaa gat gtg att aag aag aac aag cag gag cga gat gaa gac aac ttg				1635
Lys Asp Val Ile Lys Lys Asn Lys Gln Glu Arg Asp Glu Asp Asn Leu				
	525	530	535	
aac tat acg gac tcg ttt gac aac cgc atg ctt cgg ttc ttc gtg cgt				1683
Asn Tyr Thr Asp Ser Phe Asp Asn Arg Met Leu Arg Phe Phe Val Arg				
	540	545	550	
cac ctg tta cag aga gct cat caa ccc ggc tgg aga gat cat gga gct				1731
His Leu Leu Gln Arg Ala His Gln Pro Gly Trp Arg Asp His Gly Ala				
	555	560	565	

gag ttc cca gat gaa gaa gag ttg gat gag tct tcc agc acc tca gat 1779  
 Glu Phe Pro Asp Glu Glu Glu Leu Asp Glu Ser Ser Ser Thr Ser Asp  
 570 575 580 585

aca tcc gag gag gag ggc caa gat cga gtg cag tgc ata cca tcc 1824  
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 35 40 45

Gly Asp Gly Gly Asp Thr Arg Asp Gly Gly Phe Leu Asn Asp Ala Ser  
 50 55 60

Thr Glu Asn Gln Asn Thr Asp Ser Glu Ser Ser Ser Glu Asp Val Glu  
 65 70 75 80

Leu Glu Ser Met Gly Glu Gly Leu Phe Gly Tyr Pro Leu Val Gly Glu  
 85 90 95

Glu Thr Glu Arg Glu Glu Glu Glu Glu Glu Met Glu Glu Glu Gly Glu  
 100 105 110

Glu Glu Glu Gln Pro Arg Met Cys Pro Arg Cys Gly Gly Thr Asn His  
 115 120 125

Asp Gln Cys Leu Leu Asp Glu Asp Gln Ala Leu Glu Glu Trp Ile Ser  
 130 135 140

Ser Glu Thr Ser Ala Leu Pro Arg Ser Arg Trp Gln Val Leu Thr Ala  
 145 150 155 160

Leu Arg Gln Arg Gln Leu Gly Ser Ser Ala Arg Phe Val Tyr Glu Ala  
 165 170 175

Cys Gly Ala Arg Thr Phe Val Gln Arg Phe Arg Leu Gln Tyr Leu Leu  
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Gly Ser His Ala Gly Ser Val Ser Thr Ile His Phe Asn Gln Arg Gly  
 195 200 205

Thr Arg Leu Ala Ser Ser Gly Asp Asp Leu Arg Val Ile Val Trp Asp  
 210 215 220  
 Trp Val Arg Gln Lys Pro Val Leu Asn Phe Glu Ser Gly His Asp Ile  
 225 230 235 240  
 Asn Val Ile Gln Ala Lys Phe Phe Pro Asn Cys Gly Asp Ser Thr Leu  
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 Ala Met Cys Gly His Asp Gly Gln Val Arg Val Ala Glu Leu Ile Asn  
 260 265 270  
 Ala Ser Tyr Cys Glu Asn Thr Lys Arg Val Ala Lys His Arg Gly Pro  
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 Ser Gly Glu Asp Ala Val Val Phe Thr Ile Asp Leu Arg Gln Asp Arg  
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 Pro Ala Ser Lys Val Val Val Thr Arg Glu Asn Asp Lys Lys Val Gly  
 325 330 335  
 Leu Tyr Thr Ile Ser Met Asn Pro Ala Asn Ile Tyr Gln Phe Ala Val  
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 Gly Gly His Asp Gln Phe Val Arg Ile Tyr Asp Gln Arg Arg Ile Asp  
 355 360 365  
 Lys Lys Glu Asn Asn Gly Val Leu Lys Lys Phe Thr Pro His His Leu  
 370 375 380  
 Val Tyr Cys Asp Phe Pro Thr Asn Ile Thr Cys Val Val Tyr Ser His  
 385 390 395 400  
 Asp Gly Thr Glu Leu Leu Ala Ser Tyr Asn Asp Glu Asp Ile Tyr Leu  
 405 410 415  
 Phe Asn Ser Ser Leu Ser Asp Gly Ala Gln Tyr Val Lys Arg Tyr Lys  
 420 425 430  
 Gly His Arg Asn Asn Asp Thr Ile Lys Cys Val Asn Phe Tyr Gly Pro  
 435 440 445  
 Arg Ser Glu Phe Val Val Ser Gly Ser Asp Cys Gly His Val Phe Phe  
 450 455 460  
 Trp Glu Lys Ser Ser Ser Gln Ile Ile Gln Phe Met Glu Gly Asp Arg  
 465 470 475 480  
 Gly Asp Ile Val Asn Cys Leu Glu Pro His Pro Tyr Leu Pro Val Leu  
 485 490 495  
 Ala Thr Ser Gly Leu Asp Gln His Val Arg Ile Trp Thr Pro Thr Ala  
 500 505 510

Lys Thr Ala Thr Glu Leu Thr Gly Leu Lys Asp Val Ile Lys Lys Asn  
 515 520 525  
 Lys Gln Glu Arg Asp Glu Asp Asn Leu Asn Tyr Thr Asp Ser Phe Asp  
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 Asn Arg Met Leu Arg Phe Phe Val Arg His Leu Leu Gln Arg Ala His  
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 Gln Pro Gly Trp Arg Asp His Gly Ala Glu Phe Pro Asp Glu Glu Glu  
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ttt tcc tgg tta aaa atc tgg ggg aaa atg acg gac tcc aag ccg atc	96
Phe Ser Trp Leu Lys Ile Trp Gly Lys Met Thr Asp Ser Lys Pro Ile	
20 25 30	
acc aag agt aaa tca gaa gca aac ctc atc ccg agc cag gag ccc ttt	144
Thr Lys Ser Lys Ser Glu Ala Asn Leu Ile Pro Ser Gln Glu Pro Phe	
35 40 45	
cca gcc tct gat aac tca ggg gag aca ccg cag aga aat ggg gag ggc	192
Pro Ala Ser Asp Asn Ser Gly Glu Thr Pro Gln Arg Asn Gly Glu Gly	
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cac act ctg ccc aag aca ccc agc cag gcc gag cca gcc tcc cac aaa	240
His Thr Leu Pro Lys Thr Pro Ser Gln Ala Glu Pro Ala Ser His Lys	
65 70 75 80	
ggc ccc aaa gat gcc ggt cgg cgg aga aac tcc cta cca ccc tcc cac	288
Gly Pro Lys Asp Ala Gly Arg Arg Arg Asn Ser Leu Pro Pro Ser His	
85 90 95	
cag aag ccc cca aga aac ccc ctt tct tcc agt gac gca gca ccc tcc	336
Gln Lys Pro Pro Arg Asn Pro Leu Ser Ser Ser Asp Ala Ala Pro Ser	
100 105 110	
cca gag ctt caa gcc aac ggg act ggg aca caa ggt ctg gag gcc aca	384



Pro	Glu	Leu	Gln	Ala	Asn	Gly	Thr	Gly	Thr	Gln	Gly	Leu	Glu	Ala	Thr		
		115					120					125					
gat	acc	aat	ggc	ctg	tcc	tcc	tca	gcc	agg	ccc	cag	ggc	cag	caa	gct	432	
Asp	Thr	Asn	Gly	Leu	Ser	Ser	Ser	Ala	Arg	Pro	Gln	Gly	Gln	Gln	Ala		
		130				135				140							
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Gly	Ser	Pro	Ser	Lys	Glu	Asp	Lys	Lys	Gln	Ala	Asn	Ile	Lys	Arg	Gln		
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ctg	atg	acc	aac	ttc	atc	ctg	ggc	tct	ttt	gat	gac	tac	tcc	tcc	gac	528	
Leu	Met	Thr	Asn	Phe	Ile	Leu	Gly	Ser	Phe	Asp	Asp	Tyr	Ser	Ser	Asp		
				165				170						175			
gag	gac	tct	gtt	gct	ggc	tca	tct	cgt	gag	tct	acc	cgg	aag	ggc	agc	576	
Glu	Asp	Ser	Val	Ala	Gly	Ser	Ser	Arg	Glu	Ser	Thr	Arg	Lys	Gly	Ser		
			180					185					190				
cgg	gcc	agc	ttg	ggg	gcc	ctg	tcc	ctg	gag	gct	tat	ctg	acc	aca	agg	624	
Arg	Ala	Ser	Leu	Gly	Ala	Leu	Ser	Leu	Glu	Ala	Tyr	Leu	Thr	Thr	Arg		
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ccg	agc	atg	tcg	gga	ctc	cac	ctg	gtg	aag	agg	gga	cgg	gaa	cac	aag	672	
Pro	Ser	Met	Ser	Gly	Leu	His	Leu	Val	Lys	Arg	Gly	Arg	Glu	His	Lys		
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Lys	Leu	Asp	Leu	His	Arg	Asp	Phe	Thr	Val	Ala	Ser	Pro	Ala	Glu	Phe		
		225			230				235						240		
gtc	aca	cgc	ttt	ggg	ggg	gat	cgg	gtc	atc	gag	aag	gtg	ctt	att	gcc	768	
Val	Thr	Arg	Phe	Gly	Gly	Asp	Arg	Val	Ile	Glu	Lys	Val	Leu	Ile	Ala		
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aac	aac	ggg	att	gcc	gcc	gtg	aag	tgc	atg	cgc	tcc	atc	cgc	agg	tgg	816	
Asn	Asn	Gly	Ile	Ala	Ala	Val	Lys	Cys	Met	Arg	Ser	Ile	Arg	Arg	Trp		
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gcc	tat	gag	atg	ttc	cgc	aac	gag	cgg	gcc	atc	cgg	ttt	gtt	gtg	atg	864	
Ala	Tyr	Glu	Met	Phe	Arg	Asn	Glu	Arg	Ala	Ile	Arg	Phe	Val	Val	Met		
		275					280					285					
gtg	acc	ccc	gag	gac	ctt	aag	gcc	aac	gca	gag	tac	atc	aag	atg	gcg	912	
Val	Thr	Pro	Glu	Asp	Leu	Lys	Ala	Asn	Ala	Glu	Tyr	Ile	Lys	Met	Ala		
		290				295					300						
gat	cat	tac	gtc	ccc	gtc	cca	gga	ggg	ccc	aat	aac	aac	aac	tat	gcc	960	
Asp	His	Tyr	Val	Pro	Val	Pro	Gly	Gly	Pro	Asn	Asn	Asn	Asn	Tyr	Ala		
		305			310				315						320		
aac	gtg	gag	ctg	att	gtg	gac	att	gcc	aag	aga	atc	ccc	gtg	cag	gcg	1008	
Asn	Val	Glu	Leu	Ile	Val	Asp	Ile	Ala	Lys	Arg	Ile	Pro	Val	Gln	Ala		
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gtg	tgg	gct	ggc	tgg	ggc	cat	gct	tca	gaa	aac	cct	aaa	ctt	ccg	gag	1056	
Val	Trp	Ala	Gly	Trp	Gly	His	Ala	Ser	Glu	Asn	Pro	Lys	Leu	Pro	Glu		

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Leu	Leu	Cys	Lys	Asn	Gly	Val	Ala	Phe	Leu	Gly	Pro	Pro	Ser	Glu	Ala					
355						360						365								
atg	tgg	gcc	tta	gga	gat	aag	atc	gcc	tcc	acc	gtt	gtc	gcc	cag	acg	1152				
Met	Trp	Ala	Leu	Gly	Asp	Lys	Ile	Ala	Ser	Thr	Val	Val	Ala	Gln	Thr					
370						375						380								
cta	cag	gtc	cca	acc	ctg	ccc	tgg	agt	gga	agc	ggc	ctg	aca	gtg	gag	1200				
Leu	Gln	Val	Pro	Thr	Leu	Pro	Trp	Ser	Gly	Ser	Gly	Leu	Thr	Val	Glu					
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tgg	aca	gaa	gat	gat	ctg	cag	cag	gga	aaa	aga	atc	agt	gtc	cca	gaa	1248				
Trp	Thr	Glu	Asp	Asp	Leu	Gln	Gln	Gly	Lys	Arg	Ile	Ser	Val	Pro	Glu					
			405						410			415								
gat	gtt	tat	gac	aag	ggt	tgc	gtg	aaa	gac	gta	gat	gag	ggc	ttg	gag	1296				
Asp	Val	Tyr	Asp	Lys	Gly	Cys	Val	Lys	Asp	Val	Asp	Glu	Gly	Leu	Glu					
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gca	gca	gaa	aga	att	ggt	ttt	cca	ttg	atg	atc	aaa	gct	tct	gaa	ggt	1344				
Ala	Ala	Glu	Arg	Ile	Gly	Phe	Pro	Leu	Met	Ile	Lys	Ala	Ser	Glu	Gly					
435						440						445								
ggc	gga	ggg	aag	gga	atc	cgg	aag	gct	gag	agt	gcg	gag	gac	ttc	ccg	1392				
Gly	Gly	Gly	Lys	Gly	Ile	Arg	Lys	Ala	Glu	Ser	Ala	Glu	Asp	Phe	Pro					
450						455						460								
atc	ctt	ttc	aga	caa	gta	cag	agt	gag	atc	cca	ggc	tcg	ccc	atc	ttt	1440				
Ile	Leu	Phe	Arg	Gln	Val	Gln	Ser	Glu	Ile	Pro	Gly	Ser	Pro	Ile	Phe					
465				470						475				480						
ctc	atg	aag	ctg	gcc	cag	cac	gcc	cgt	cac	ctg	gaa	gtt	cag	atc	ctc	1488				
Leu	Met	Lys	Leu	Ala	Gln	His	Ala	Arg	His	Leu	Glu	Val	Gln	Ile	Leu					
			485						490			495								
gct	gac	cag	tat	ggg	aat	gct	gtg	tct	ctg	ttt	ggt	cgc	gac	tgc	tcc	1536				
Ala	Asp	Gln	Tyr	Gly	Asn	Ala	Val	Ser	Leu	Phe	Gly	Arg	Asp	Cys	Ser					
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atc	cag	cgg	cgg	cat	cag	aag	atc	gtt	gag	gaa	gca	ccg	gcc	acc	atc	1584				
Ile	Gln	Arg	Arg	His	Gln	Lys	Ile	Val	Glu	Glu	Ala	Pro	Ala	Thr	Ile					
515						520						525								
gcc	ccg	ctg	gcc	ata	ttc	gag	ttc	atg	gag	cag	tgt	gcc	atc	cgc	ctg	1632				
Ala	Pro	Leu	Ala	Ile	Phe	Glu	Phe	Met	Glu	Gln	Cys	Ala	Ile	Arg	Leu					
530				535				540												
gcc	aag	acc	gtg	ggc	tat	gtg	agt	gca	ggg	aca	gtg	gaa	tac	ctc	tat	1680				
Ala	Lys	Thr	Val	Gly	Tyr	Val	Ser	Ala	Gly	Thr	Val	Glu	Tyr	Leu	Tyr					
545				550				555				560								
agt	cag	gat	ggc	agc	ttc	cac	ttc	ttg	gag	ctg	aat	cct	cgc	ttg	cag	1728				
Ser	Gln	Asp	Gly	Ser	Phe	His	Phe	Leu	Glu	Leu	Asn	Pro	Arg	Leu	Gln					
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gtg gaa cat ccc tgc aca gaa atg att gct gat gtt aat ctg ccg gcc	1776
Val Glu His Pro Cys Thr Glu Met Ile Ala Asp Val Asn Leu Pro Ala	
580 585 590	
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Ala Gln Leu Gln Ile Ala Met Gly Val Pro Leu His Arg Leu Lys Asp	
595 600 605	
atc cgg ctt ctg tat gga gag tca cca tgg gga gtg act ccc att tct	1872
Ile Arg Leu Leu Tyr Gly Glu Ser Pro Trp Gly Val Thr Pro Ile Ser	
610 615 620	
ttt gaa acc ccc tca aac cct ccc ctc gcc cga ggc cac gtc att gcc	1920
Phe Glu Thr Pro Ser Asn Pro Pro Leu Ala Arg Gly His Val Ile Ala	
625 630 635 640	
gcc aga atc acc agc gaa aac cca gac gag ggt ttt aag ccg agc tcc	1968
Ala Arg Ile Thr Ser Glu Asn Pro Asp Glu Gly Phe Lys Pro Ser Ser	
645 650 655	
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Gly Thr Val Gln Glu Leu Asn Phe Arg Ser Ser Lys Asn Val Trp Gly	
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tac ttc agc gtg gcc gct act gga ggc ctg cac gag ttt gcg gat tcc	2064
Tyr Phe Ser Val Ala Ala Thr Gly Gly Leu His Glu Phe Ala Asp Ser	
675 680 685	
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Gln Phe Gly His Cys Phe Ser Trp Gly Glu Asn Arg Glu Glu Ala Ile	
690 695 700	
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Ser Asn Met Val Val Ala Leu Lys Glu Leu Ser Ile Arg Gly Asp Phe	
705 710 715 720	
agg act acc gtg gaa tac ctc att aac ctc ctg gag acc gag agc ttc	2208
Arg Thr Thr Val Glu Tyr Leu Ile Asn Leu Leu Glu Thr Glu Ser Phe	
725 730 735	
cag aac aac gac atc gac acc ggg tgg ttg gac tac ctc att gct gag	2256
Gln Asn Asn Asp Ile Asp Thr Gly Trp Leu Asp Tyr Leu Ile Ala Glu	
740 745 750	
aaa gtg cag gcg gag aaa ccg gat atc atg ctt ggg gtg gta tgc ggg	2304
Lys Val Gln Ala Glu Lys Pro Asp Ile Met Leu Gly Val Val Cys Gly	
755 760 765	
gcc ttg aac gtg gcc gat gcg atg ttc aga acg tgc atg aca gat ttc	2352
Ala Leu Asn Val Ala Asp Ala Met Phe Arg Thr Cys Met Thr Asp Phe	
770 775 780	
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Leu His Ser Leu Glu Arg Gly Gln Val Leu Pro Ala Asp Ser Leu Leu	
785 790 795 800	

aac ctc gta gat gtg gaa tta att tac gga ggt gtt aag tac att ctc	2448
Asn Leu Val Asp Val Glu Leu Ile Tyr Gly Gly Val Lys Tyr Ile Leu	
805 810 815	
aag gtg gcc cgg cag tct ctg acc atg ttc gtt ctc atc atg aat ggc	2496
Lys Val Ala Arg Gln Ser Leu Thr Met Phe Val Leu Ile Met Asn Gly	
820 825 830	
tgc cac atc gag att gat gcc cac cgg ctg aat gat ggg ggg ctc ctg	2544
Cys His Ile Glu Ile Asp Ala His Arg Leu Asn Asp Gly Gly Leu Leu	
835 840 845	
ctc tcc tac aat ggg aac agc tac acc acc tac atg aag gaa gag gtt	2592
Leu Ser Tyr Asn Gly Asn Ser Tyr Thr Thr Tyr Met Lys Glu Glu Val	
850 855 860	
gac agt tac cga att acc atc ggc aat aag acg tgt gtg ttt gag aag	2640
Asp Ser Tyr Arg Ile Thr Ile Gly Asn Lys Thr Cys Val Phe Glu Lys	
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Glu Asn Asp Pro Thr Val Leu Arg Ser Pro Ser Ala Gly Lys Leu Thr	
885 890 895	
cag tac aca gtg gag gat ggg ggc cac gtt gag gct ggg agc agc tac	2736
Gln Tyr Thr Val Glu Asp Gly Gly His Val Glu Ala Gly Ser Ser Tyr	
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gct gag atg gag gtg atg aag atg atc atg acc ctg aac gtt cag gaa	2784
Ala Glu Met Glu Val Met Lys Met Ile Met Thr Leu Asn Val Gln Glu	
915 920 925	
aga ggc cgg gtg aag tac atc aag cgt cca ggt gcc gtg ctg gaa gca	2832
Arg Gly Arg Val Lys Tyr Ile Lys Arg Pro Gly Ala Val Leu Glu Ala	
930 935 940	
ggc tgc gtg gtg gcc agg ctg gag ctc gat gac cct tct aaa gtc cac	2880
Gly Cys Val Val Ala Arg Leu Glu Leu Asp Asp Pro Ser Lys Val His	
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Pro Ala Glu Pro Phe Thr Gly Glu Leu Pro Ala Gln Gln Thr Leu Pro	
965 970 975	
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Ile Leu Gly Glu Lys Leu His Gln Val Phe His Ser Val Leu Glu Asn	
980 985 990	
ctc acc aac gtc atg agt ggc ttt tgt ctg cca gag ccc gtt ttt agc	3024
Leu Thr Asn Val Met Ser Gly Phe Cys Leu Pro Glu Pro Val Phe Ser	
995 000 005	
ata aag ctg aag gag tgg gtg cag aag ctc atg atg acc ctc cgg cac	3072
Ile Lys Leu Lys Glu Trp Val Gln Lys Leu Met Met Thr Leu Arg His	
010 015 020	
ccg tca ctg ccg ctg ctg gag ctg cag gag atc atg acc agc gtg gca	3120

Pro 025	Ser	Leu	Pro	Leu	Glu	Leu	Gln	Ile	Met	Thr	Ser	Val	Ala			
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			060					065					070			
cag Gln	ata Ile	gcc Ala	acc Thr	atc Ile	ctg Leu	gac Asp	tgc Cys	cat His	gca Ala	gcc Ala	acc Thr	ctg Leu	cag Gln	cgg Arg	aag Lys	3264
		075					080					085				
gct Ala	gat Asp	cga Arg	gag Glu	gtc Val	ttc Phe	ttc Phe	atc Ile	aac Asn	acc Thr	cag Gln	agc Ser	atc Ile	gtg Val	cag Gln	ttg Leu	3312
	090					095					100					
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105					110					115					120	
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tgt Cys	gtg Val	ata Ile	aac Asn	ctc Leu	agg Arg	gag Glu	cag Gln	ttc Phe	aag Lys	cca Pro	gac Asp	atg Met	tcc Ser	cag Gln	gtg Val	3552
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gac Asp	gag Glu	ctg Leu	atc Ile	tcc Ser	atc Ile	ctc Leu	aac Asn	gag Glu	ctc Leu	act Thr	cag Gln	ctg Leu	agc Ser	aaa Lys	agc Ser	3696
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gag Glu	cac His	tgc Cys	aaa Lys	gtg Val	gcc Ala	ctc Leu	aga Arg	gcc Ala	cgg Arg	cag Gln	atc Ile	ctg Leu	att Ile	gcc Ala	tcc Ser	3744
		235					240					245				
cac His	ctc Leu	ccc Pro	tcc Ser	tac Tyr	gag Glu	ctg Leu	cgg Arg	cat His	aac Asn	cag Gln	gtg Val	gag Glu	tcc Ser	att Ile	ttc Phe	3792

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ctg tct gcc att gac atg tac ggc cac cag ttc tgc ccc gag aac ctc			3840
Leu Ser Ala Ile Asp Met Tyr Gly His Gln Phe Cys Pro Glu Asn Leu			
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aag aaa tta ata ctt tcg gaa aca acc atc ttc gac gtc ctg cct act			3888
Lys Lys Leu Ile Leu Ser Glu Thr Thr Ile Phe Asp Val Leu Pro Thr			
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ttc ttc tat cac gca aac aaa gtc gtg tgc atg gcg tcc ttg gag gtt			3936
Phe Phe Tyr His Ala Asn Lys Val Val Cys Met Ala Ser Leu Glu Val			
	300	305	310
tac gtg cgg agg ggc tac atc gcc tat gag tta aac agc ctg cag cac			3984
Tyr Val Arg Arg Gly Tyr Ile Ala Tyr Glu Leu Asn Ser Leu Gln His			
	315	320	325
cgg cag ctc ccg gac ggc acc tgc gtg gta gaa ttc cag ttc atg ctg			4032
Arg Gln Leu Pro Asp Gly Thr Cys Val Val Glu Phe Gln Phe Met Leu			
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ccg tcc tcc cac cca aac cgg atg acc gtg ccc atc agc atc acc aac			4080
Pro Ser Ser His Pro Asn Arg Met Thr Val Pro Ile Ser Ile Thr Asn			
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cct gac ctg ctg agg cac agc aca gag ctc ttc atg gac agc ggc ttc			4128
Pro Asp Leu Leu Arg His Ser Thr Glu Leu Phe Met Asp Ser Gly Phe			
	365	370	375
tcc cca ctg tgc cag cgc atg gga gcc atg gta gcc ttc agg aga ttc			4176
Ser Pro Leu Cys Gln Arg Met Gly Ala Met Val Ala Phe Arg Arg Phe			
	380	385	390
gag gac ttc acc aga aat ttt gat gaa gtc atc tct tgc ttc gcc aac			4224
Glu Asp Phe Thr Arg Asn Phe Asp Glu Val Ile Ser Cys Phe Ala Asn			
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gtg ccc aaa gac acc ccc ctc ttc agc gag gcc cgc acc tcc cta tac			4272
Val Pro Lys Asp Thr Pro Leu Phe Ser Glu Ala Arg Thr Ser Leu Tyr			
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tcc gag gat gac tgc aag agc ctc aga gaa gag ccc atc cac att ctg			4320
Ser Glu Asp Asp Cys Lys Ser Leu Arg Glu Glu Pro Ile His Ile Leu			
	425	430	435
aat gtg tcc atc cag tgt gca gac cac ctg gag gat gag gca ctg gtg			4368
Asn Val Ser Ile Gln Cys Ala Asp His Leu Glu Asp Glu Ala Leu Val			
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ccg att tta cgg aca ttc gta cag tcc aag aaa aat atc ctt gtg gat			4416
Pro Ile Leu Arg Thr Phe Val Gln Ser Lys Lys Asn Ile Leu Val Asp			
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tat gga ctc cga cga atc aca ttc ttg att gcc caa gag ttt gca gaa			4464
Tyr Gly Leu Arg Arg Ile Thr Phe Leu Ile Ala Gln Glu Phe Ala Glu			
	475	480	485

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cac aag atg cac ctt tac ctg ggt gct gcc aag gtg aag gaa ggt gtg His Lys Met His Leu Tyr Leu Gly Ala Ala Lys Val Lys Glu Gly Val 525 530 535	4608
gaa gtg acg gac cat agg ttc ttc atc cgc gcc atc atc agg cac tct Glu Val Thr Asp His Arg Phe Phe Ile Arg Ala Ile Ile Arg His Ser 540 545 550	4656
gac ctg atc aca aag gaa gcc tcc ttc gaa tac ctg cag aac gag ggt Asp Leu Ile Thr Lys Glu Ala Ser Phe Glu Tyr Leu Gln Asn Glu Gly 555 560 565	4704
gag cgg ctg ctc ctg gag gcc atg gac gag ctg gag gtg gcg ttc aat Glu Arg Leu Leu Leu Glu Ala Met Asp Glu Leu Glu Val Ala Phe Asn 570 575 580	4752
aac acc agc gtg cgc acc gac tgc aac cac atc ttc ctc aac ttc gtg Asn Thr Ser Val Arg Thr Asp Cys Asn His Ile Phe Leu Asn Phe Val 585 590 595 600	4800
ccc act gtc atc atg gac ccc ttc aag atc gag gag tcc gtg cgc tac Pro Thr Val Ile Met Asp Pro Phe Lys Ile Glu Glu Ser Val Arg Tyr 605 610 615	4848
atg gtt atg cgc tac ggc agc cgg ctg tgg aaa ctc cgt gtg cta cag Met Val Met Arg Tyr Gly Ser Arg Leu Trp Lys Leu Arg Val Leu Gln 620 625 630	4896
gct gag gtc aag atc aac atc cgc cag acc acc acc ggc agt gcc gtt Ala Glu Val Lys Ile Asn Ile Arg Gln Thr Thr Thr Gly Ser Ala Val 635 640 645	4944
ccc atc cgc ctg ttc atc acc aat gag tcg ggc tac tac ctg gac atc Pro Ile Arg Leu Phe Ile Thr Asn Glu Ser Gly Tyr Tyr Leu Asp Ile 650 655 660	4992
agc ctc tac aaa gaa gtg act gac tcc aga tct gga aat atc atg ttt Ser Leu Tyr Lys Glu Val Thr Asp Ser Arg Ser Gly Asn Ile Met Phe 665 670 675 680	5040
cac tcc ttc ggc aac aag caa ggg ccc cag cac ggg atg ctg atc aat His Ser Phe Gly Asn Lys Gln Gly Pro Gln His Gly Met Leu Ile Asn 685 690 695	5088
act ccc tac gtc acc aag gat ctg ctc cag gcc aag cga ttc cag gcc Thr Pro Tyr Val Thr Lys Asp Leu Leu Gln Ala Lys Arg Phe Gln Ala 700 705 710	5136

cag acc ctg gga acc acc tac atc tat gac ttc ccg gaa atg ttc agg Gln Thr Leu Gly Thr Thr Tyr Ile Tyr Asp Phe Pro Glu Met Phe Arg 715 720 725	5184
cag gca agt ccg gcg gct cag acg cgg gta cat gtg cac aat gtg cag Gln Ala Ser Pro Ala Ala Gln Thr Arg Val His Val His Asn Val Gln 730 735 740	5232
gct ctc ttt aaa ctg tgg ggc tcc cca gac aag tat ccc aaa gac atc Ala Leu Phe Lys Leu Trp Gly Ser Pro Asp Lys Tyr Pro Lys Asp Ile 745 750 755 760	5280
ctg aca tac act gaa tta gtg ttg gac tct cag ggc cag ctg gtg gag Leu Thr Tyr Thr Glu Leu Val Leu Asp Ser Gln Gly Gln Leu Val Glu 765 770 775	5328
atg aac cga ctt cct ggt gga aat gag gtg ggc atg gtg gcc ttc aaa Met Asn Arg Leu Pro Gly Gly Asn Glu Val Gly Met Val Ala Phe Lys 780 785 790	5376
atg agg ttt aag acc cag gag tac ccg gaa gga cgg gat gtg atc gtc Met Arg Phe Lys Thr Gln Glu Tyr Pro Glu Gly Arg Asp Val Ile Val 795 800 805	5424
atc ggc aat gac atc acc ttt cgc att gga tcc ttt ggc cct gga gag Ile Gly Asn Asp Ile Thr Phe Arg Ile Gly Ser Phe Gly Pro Gly Glu 810 815 820	5472
gac ctt ctg tac ctg cgg gca tcc gag atg gcc cgg gca gag ggc att Asp Leu Leu Tyr Leu Arg Ala Ser Glu Met Ala Arg Ala Glu Gly Ile 825 830 835 840	5520
ccc aaa att tac gtg gca gcc aac agt ggc gcc cgt att ggc atg gca Pro Lys Ile Tyr Val Ala Ala Asn Ser Gly Ala Arg Ile Gly Met Ala 845 850 855	5568
gag gag atc aaa cac atg ttc cac gtg gct tgg gtg gac cca gaa gac Glu Glu Ile Lys His Met Phe His Val Ala Trp Val Asp Pro Glu Asp 860 865 870	5616
ccc cac aaa aaa aaa aca gtg gct ttc agt gca ggg aac tgg att Pro His Lys Lys Lys Lys Thr Val Ala Phe Ser Ala Gly Asn Trp Ile 875 880 885	5664
cgt agc ctc act aaa gta ttt ttt aag gga ttt aaa tac ctg tac ctg Arg Ser Leu Thr Lys Val Phe Phe Lys Gly Phe Lys Tyr Leu Tyr Leu 890 895 900	5712
act ccc caa gac tac acc aga atc agc tcc ctg aac tcc gtc cac tgt Thr Pro Gln Asp Tyr Thr Arg Ile Ser Ser Leu Asn Ser Val His Cys 905 910 915 920	5760
aaa cac atc gag gaa gga gga gag tcc aga tac atg atc acg gat atc Lys His Ile Glu Glu Gly Gly Glu Ser Arg Tyr Met Ile Thr Asp Ile 925 930 935	5808
atc ggg aag gat gat ggc ttg ggc gtg gag aat ctg agg ggc tca ggc	5856



Ile Gly Lys Asp Asp Gly Leu Gly Val Glu Asn Leu Arg Gly Ser Gly	
940 945 950	
atg att gct ggg gag tcc tct ctg gct tac gaa gag atc gtc acc att	5904
Met Ile Ala Gly Glu Ser Ser Leu Ala Tyr Glu Glu Ile Val Thr Ile	
955 960 965	
agc ttg gtg acc tgc cga gcc att ggg att ggg gcc tac ttg gtg agg	5952
Ser Leu Val Thr Cys Arg Ala Ile Gly Ile Gly Ala Tyr Leu Val Arg	
970 975 980	
ctg ggc cag cga gtg atc cag gtg gag aat tcc cac atc atc ctc aca	6000
Leu Gly Gln Arg Val Ile Gln Val Glu Asn Ser His Ile Ile Leu Thr	
985 990 995 000	
gga gca agt gct ctc aac aag gtc ctg gga aga gag gtc tac aca tcc	6048
Gly Ala Ser Ala Leu Asn Lys Val Leu Gly Arg Glu Val Tyr Thr Ser	
005 010 015	
aac aac cag ctg ggt ggc gtt cag atc atg cat tac aat ggt gtc tcc	6096
Asn Asn Gln Leu Gly Gly Val Gln Ile Met His Tyr Asn Gly Val Ser	
020 025 030	
cac atc acc gtg cca gat gac ttt gag ggg gtt tat acc atc ctg gag	6144
His Ile Thr Val Pro Asp Asp Phe Glu Gly Val Tyr Thr Ile Leu Glu	
035 040 045	
tgg ctg tcc tat atg cca aag gat aat cac agc cct gtc cct atc atc	6192
Trp Leu Ser Tyr Met Pro Lys Asp Asn His Ser Pro Val Pro Ile Ile	
050 055 060	
aca ccc act gac ccc att gac aga gaa att gaa ttc ctc cca tcc aga	6240
Thr Pro Thr Asp Pro Ile Asp Arg Glu Ile Glu Phe Leu Pro Ser Arg	
065 070 075 080	
gct ccc tac gac ccc cgg tgg atg ctt gca gga agg cct cac cca act	6288
Ala Pro Tyr Asp Pro Arg Trp Met Leu Ala Gly Arg Pro His Pro Thr	
085 090 095	
ctg aag gga acg tgg cag agc gga ttc ttt gac cac ggc agt ttc aag	6336
Leu Lys Gly Thr Trp Gln Ser Gly Phe Phe Asp His Gly Ser Phe Lys	
100 105 110	
gaa atc atg gca ccc tgg gcg cag acc gtg gtg aca gga cga gca agg	6384
Glu Ile Met Ala Pro Trp Ala Gln Thr Val Val Thr Gly Arg Ala Arg	
115 120 125	
ctt ggg ggg att ccc gtg gga gtg att gct gtg gag aca cgg act gtg	6432
Leu Gly Gly Ile Pro Val Gly Val Ile Ala Val Glu Thr Arg Thr Val	
130 135 140	
gag gtg gca gtc cct gca gac cct gcc aac ctg gat tct gag gcc aag	6480
Glu Val Ala Val Pro Ala Asp Pro Ala Asn Leu Asp Ser Glu Ala Lys	
145 150 155 160	
ata att cag cag gca gga cag gtg tgg ttc cca gac tca gcc tac aaa	6528
Ile Ile Gln Gln Ala Gly Gln Val Trp Phe Pro Asp Ser Ala Tyr Lys	

165	170	175	
acc gcc cag gcc gtc aag gac ttc aac cgg gag aag ttg ccc ctg atg			6576
Thr Ala Gln Ala Val Lys Asp Phe Asn Arg Glu Lys Leu Pro Leu Met			
180	185	190	
atc ttt gcc aac tgg agg ggg ttc tcc ggt ggc atg aaa gac atg tat			6624
Ile Phe Ala Asn Trp Arg Gly Phe Ser Gly Gly Met Lys Asp Met Tyr			
195	200	205	
gac cag gtg ctg aag ttt gga gcc tac atc gtg gac ggc ctt aga caa			6672
Asp Gln Val Leu Lys Phe Gly Ala Tyr Ile Val Asp Gly Leu Arg Gln			
210	215	220	
tac aaa cag ccc atc ctg atc tat atc ccg ccc tat gcg gag ctc cgg			6720
Tyr Lys Gln Pro Ile Leu Ile Tyr Ile Pro Pro Tyr Ala Glu Leu Arg			
225	230	235	240
gga ggc tcc tgg gtg gtc ata gat gcc acc atc aac ccg ctg tgc ata			6768
Gly Gly Ser Trp Val Val Ile Asp Ala Thr Ile Asn Pro Leu Cys Ile			
245	250	255	
gaa atg tat gca gac aaa gag agc agg ggt ggt gtt ctg gaa cca gag			6816
Glu Met Tyr Ala Asp Lys Glu Ser Arg Gly Gly Val Leu Glu Pro Glu			
260	265	270	
ggg aca gtg gag att aag ttc cga aag aaa gat ctg ata aag tcc atg			6864
Gly Thr Val Glu Ile Lys Phe Arg Lys Lys Asp Leu Ile Lys Ser Met			
275	280	285	
aga agg atc gat cca gct tac aag aag ctc atg gaa cag cta ggg gaa			6912
Arg Arg Ile Asp Pro Ala Tyr Lys Lys Leu Met Glu Gln Leu Gly Glu			
290	295	300	
cct gat ctc tcc gac aag gac cga aag gac ctg gag ggc cgg cta aag			6960
Pro Asp Leu Ser Asp Lys Asp Arg Lys Asp Leu Glu Gly Arg Leu Lys			
305	310	315	320
gct cgc gag gac ctg ctg ctc ccc atc tac cac cag gtg gcg gtg cag			7008
Ala Arg Glu Asp Leu Leu Leu Pro Ile Tyr His Gln Val Ala Val Gln			
325	330	335	
ttc gcc gac ttc cat gac aca ccc ggc cgg atg ctg gag aag ggc gtc			7056
Phe Ala Asp Phe His Asp Thr Pro Gly Arg Met Leu Glu Lys Gly Val			
340	345	350	
ata tct gac atc ctg gag tgg aag acc gca cgc acc ttc ctg tat tgg			7104
Ile Ser Asp Ile Leu Glu Trp Lys Thr Ala Arg Thr Phe Leu Tyr Trp			
355	360	365	
cgt ctg cgc cgc ctc ctc ctg gag gac cag gtc aag cag gag atc ctg			7152
Arg Leu Arg Arg Leu Leu Leu Glu Asp Gln Val Lys Gln Glu Ile Leu			
370	375	380	
cag gcc agc ggg gag ctg agt cac gtg cat atc cag tcc atg ctg cgt			7200
Gln Ala Ser Gly Glu Leu Ser His Val His Ile Gln Ser Met Leu Arg			
385	390	395	400

cgc tgg ttc gtg gag acg gag ggg gct gtc aag gcc tac ttg tgg gac	7248
Arg Trp Phe Val Glu Thr Glu Gly Ala Val Lys Ala Tyr Leu Trp Asp	
405 410 415	
aac aac cag gtg gtt gtg cag tgg ctg gaa cag cac tgg cag gca ggg	7296
Asn Asn Gln Val Val Val Gln Trp Leu Glu Gln His Trp Gln Ala Gly	
420 425 430	
gat ggc ccg cgc tcc acc atc cgt gag aac atc acg tac ctg aag cac	7344
Asp Gly Pro Arg Ser Thr Ile Arg Glu Asn Ile Thr Tyr Leu Lys His	
435 440 445	
gac tct gtc ctc aag acc atc cga ggc ctg gtt gaa gaa aac ccc gag	7392
Asp Ser Val Leu Lys Thr Ile Arg Gly Leu Val Glu Glu Asn Pro Glu	
450 455 460	
gtg gcc gtg gac tgt gtg ata tac ctg agc cag cac atc agc cca gct	7440
Val Ala Val Asp Cys Val Ile Tyr Leu Ser Gln His Ile Ser Pro Ala	
465 470 475 480	
gag cgg gcg cag gtc gtt cac ctg ctg tct acc atg gac agc ccg gcc	7488
Glu Arg Ala Gln Val Val His Leu Leu Ser Thr Met Asp Ser Pro Ala	
485 490 495	
tcc acc tga	7497
Ser Thr	

<210>218

<211>2498

<212>PRT

<213> Homo sapiens

<400>218

Met Val Leu Leu Leu Cys Leu Ser Cys Leu Ile Phe Ser Cys Leu Thr
1 5 10 15

Phe Ser Trp Leu Lys Ile Trp Gly Lys Met Thr Asp Ser Lys Pro Ile
20 25 30

Thr Lys Ser Lys Ser Glu Ala Asn Leu Ile Pro Ser Gln Glu Pro Phe
35 40 45

Pro Ala Ser Asp Asn Ser Gly Glu Thr Pro Gln Arg Asn Gly Glu Gly
50 55 60

His Thr Leu Pro Lys Thr Pro Ser Gln Ala Glu Pro Ala Ser His Lys
65 70 75 80

Gly Pro Lys Asp Ala Gly Arg Arg Arg Asn Ser Leu Pro Pro Ser His
85 90 95

Gln Lys Pro Pro Arg Asn Pro Leu Ser Ser Ser Asp Ala Ala Pro Ser
100 105 110

Pro Glu Leu Gln Ala Asn Gly Thr Gly Thr Gln Gly Leu Glu Ala Thr

115	120	125
Asp Thr Asn Gly Leu Ser Ser Ser Ala Arg Pro Gln Gly Gln Gln Ala		
130	135	140
Gly Ser Pro Ser Lys Glu Asp Lys Lys Gln Ala Asn Ile Lys Arg Gln		
145	150	155
Leu Met Thr Asn Phe Ile Leu Gly Ser Phe Asp Asp Tyr Ser Ser Asp		
165	170	175
Glu Asp Ser Val Ala Gly Ser Ser Arg Glu Ser Thr Arg Lys Gly Ser		
180	185	190
Arg Ala Ser Leu Gly Ala Leu Ser Leu Glu Ala Tyr Leu Thr Thr Arg		
195	200	205
Pro Ser Met Ser Gly Leu His Leu Val Lys Arg Gly Arg Glu His Lys		
210	215	220
Lys Leu Asp Leu His Arg Asp Phe Thr Val Ala Ser Pro Ala Glu Phe		
225	230	235
Val Thr Arg Phe Gly Gly Asp Arg Val Ile Glu Lys Val Leu Ile Ala		
245	250	255
Asn Asn Gly Ile Ala Ala Val Lys Cys Met Arg Ser Ile Arg Arg Trp		
260	265	270
Ala Tyr Glu Met Phe Arg Asn Glu Arg Ala Ile Arg Phe Val Val Met		
275	280	285
Val Thr Pro Glu Asp Leu Lys Ala Asn Ala Glu Tyr Ile Lys Met Ala		
290	295	300
Asp His Tyr Val Pro Val Pro Gly Gly Pro Asn Asn Asn Asn Tyr Ala		
305	310	315
Asn Val Glu Leu Ile Val Asp Ile Ala Lys Arg Ile Pro Val Gln Ala		
325	330	335
Val Trp Ala Gly Trp Gly His Ala Ser Glu Asn Pro Lys Leu Pro Glu		
340	345	350
Leu Leu Cys Lys Asn Gly Val Ala Phe Leu Gly Pro Pro Ser Glu Ala		
355	360	365
Met Trp Ala Leu Gly Asp Lys Ile Ala Ser Thr Val Val Ala Gln Thr		
370	375	380
Leu Gln Val Pro Thr Leu Pro Trp Ser Gly Ser Gly Leu Thr Val Glu		
385	390	395
Trp Thr Glu Asp Asp Leu Gln Gln Gly Lys Arg Ile Ser Val Pro Glu		
405	410	415
Asp Val Tyr Asp Lys Gly Cys Val Lys Asp Val Asp Glu Gly Leu Glu		

420	425	430
Ala Ala Glu Arg Ile Gly Phe Pro Leu Met Ile Lys Ala Ser Glu Gly		
435	440	445
Gly Gly Gly Lys Gly Ile Arg Lys Ala Glu Ser Ala Glu Asp Phe Pro		
450	455	460
Ile Leu Phe Arg Gln Val Gln Ser Glu Ile Pro Gly Ser Pro Ile Phe		
465	470	475
Leu Met Lys Leu Ala Gln His Ala Arg His Leu Glu Val Gln Ile Leu		
485	490	495
Ala Asp Gln Tyr Gly Asn Ala Val Ser Leu Phe Gly Arg Asp Cys Ser		
500	505	510
Ile Gln Arg Arg His Gln Lys Ile Val Glu Glu Ala Pro Ala Thr Ile		
515	520	525
Ala Pro Leu Ala Ile Phe Glu Phe Met Glu Gln Cys Ala Ile Arg Leu		
530	535	540
Ala Lys Thr Val Gly Tyr Val Ser Ala Gly Thr Val Glu Tyr Leu Tyr		
545	550	555
Ser Gln Asp Gly Ser Phe His Phe Leu Glu Leu Asn Pro Arg Leu Gln		
565	570	575
Val Glu His Pro Cys Thr Glu Met Ile Ala Asp Val Asn Leu Pro Ala		
580	585	590
Ala Gln Leu Gln Ile Ala Met Gly Val Pro Leu His Arg Leu Lys Asp		
595	600	605
Ile Arg Leu Leu Tyr Gly Glu Ser Pro Trp Gly Val Thr Pro Ile Ser		
610	615	620
Phe Glu Thr Pro Ser Asn Pro Pro Leu Ala Arg Gly His Val Ile Ala		
625	630	635
Ala Arg Ile Thr Ser Glu Asn Pro Asp Glu Gly Phe Lys Pro Ser Ser		
645	650	655
Gly Thr Val Gln Glu Leu Asn Phe Arg Ser Ser Lys Asn Val Trp Gly		
660	665	670
Tyr Phe Ser Val Ala Ala Thr Gly Gly Leu His Glu Phe Ala Asp Ser		
675	680	685
Gln Phe Gly His Cys Phe Ser Trp Gly Glu Asn Arg Glu Glu Ala Ile		
690	695	700
Ser Asn Met Val Val Ala Leu Lys Glu Leu Ser Ile Arg Gly Asp Phe		
705	710	715
Arg Thr Thr Val Glu Tyr Leu Ile Asn Leu Leu Glu Thr Glu Ser Phe		



025	030	035	040
Gly Arg Ile Pro Ala	Pro Val Glu Lys Ser	Val Arg Arg Val Met	Ala
045	050	055	
Gln Tyr Ala Ser Asn	Ile Thr Ser Val Leu Cys	Gln Phe Pro Ser	Gln
060	065	070	
Gln Ile Ala Thr Ile	Leu Asp Cys His Ala	Ala Thr Leu Gln	Arg Lys
075	080	085	
Ala Asp Arg Glu Val	Phe Phe Ile Asn Thr	Gln Ser Ile Val	Gln Leu
090	095	100	
Val Gln Arg Tyr Arg	Ser Gly Ile Arg Gly	Tyr Met Lys Thr	Val Val
105	110	115	120
Leu Asp Leu Leu Arg	Arg Tyr Leu Arg Val	Glu Ser Lys Ala	Arg Asp
125	130	135	
Ala Asp Ala Asn Thr	Ser Gly Met Val Gly	Gly Val Arg Ser	Leu Ser
140	145	150	
Phe Thr Ser Val Trp	Cys Phe Val Ser Pro	Glu Ser His Tyr	Asp Lys
155	160	165	
Cys Val Ile Asn Leu	Arg Glu Gln Phe Lys	Pro Asp Met Ser	Gln Val
170	175	180	
Leu Asp Cys Ile Phe	Ser His Ala Gln Val	Ala Lys Lys Asn	Gln Leu
185	190	195	200
Val Ile Met Leu Ile	Asp Glu Leu Cys Gly	Pro Asp Pro Ser	Leu Ser
205	210	215	
Asp Glu Leu Ile Ser	Ile Leu Asn Glu Leu	Thr Gln Leu Ser	Lys Ser
220	225	230	
Glu His Cys Lys Val	Ala Leu Arg Ala Arg	Gln Ile Leu Ile	Ala Ser
235	240	245	
His Leu Pro Ser Tyr	Glu Leu Arg His Asn	Gln Val Glu Ser	Ile Phe
250	255	260	
Leu Ser Ala Ile Asp	Met Tyr Gly His Gln	Phe Cys Pro Glu	Asn Leu
265	270	275	280
Lys Lys Leu Ile Leu	Ser Glu Thr Thr Ile	Phe Asp Val Leu	Pro Thr
285	290	295	
Phe Phe Tyr His Ala	Asn Lys Val Val Cys	Met Ala Ser Leu	Glu Val
300	305	310	
Tyr Val Arg Arg Gly	Tyr Ile Ala Tyr Glu	Leu Asn Ser Leu	Gln His
315	320	325	
Arg Gln Leu Pro Asp	Gly Thr Cys Val Val	Glu Phe Gln Phe	Met Leu

330		335		340
Pro Ser Ser His Pro Asn Arg Met Thr Val Pro Ile Ser Ile Thr Asn				
345		350		355 360
Pro Asp Leu Leu Arg His Ser Thr Glu Leu Phe Met Asp Ser Gly Phe				
	365		370	375
Ser Pro Leu Cys Gln Arg Met Gly Ala Met Val Ala Phe Arg Arg Phe				
	380		385	390
Glu Asp Phe Thr Arg Asn Phe Asp Glu Val Ile Ser Cys Phe Ala Asn				
	395		400	405
Val Pro Lys Asp Thr Pro Leu Phe Ser Glu Ala Arg Thr Ser Leu Tyr				
	410		415	420
Ser Glu Asp Asp Cys Lys Ser Leu Arg Glu Glu Pro Ile His Ile Leu				
425		430		435 440
Asn Val Ser Ile Gln Cys Ala Asp His Leu Glu Asp Glu Ala Leu Val				
	445		450	455
Pro Ile Leu Arg Thr Phe Val Gln Ser Lys Lys Asn Ile Leu Val Asp				
	460		465	470
Tyr Gly Leu Arg Arg Ile Thr Phe Leu Ile Ala Gln Glu Phe Ala Glu				
	475		480	485
Asp Arg Ile Tyr Arg His Leu Glu Pro Ala Leu Ala Phe Gln Leu Glu				
	490		495	500
Leu Asn Arg Met Arg Asn Phe Asp Leu Thr Ala Val Pro Cys Ala Asn				
505		510		515 520
His Lys Met His Leu Tyr Leu Gly Ala Ala Lys Val Lys Glu Gly Val				
	525		530	535
Glu Val Thr Asp His Arg Phe Phe Ile Arg Ala Ile Ile Arg His Ser				
	540		545	550
Asp Leu Ile Thr Lys Glu Ala Ser Phe Glu Tyr Leu Gln Asn Glu Gly				
	555		560	565
Glu Arg Leu Leu Leu Glu Ala Met Asp Glu Leu Glu Val Ala Phe Asn				
	570		575	580
Asn Thr Ser Val Arg Thr Asp Cys Asn His Ile Phe Leu Asn Phe Val				
585		590		595 600
Pro Thr Val Ile Met Asp Pro Phe Lys Ile Glu Glu Ser Val Arg Tyr				
	605		610	615
Met Val Met Arg Tyr Gly Ser Arg Leu Trp Lys Leu Arg Val Leu Gln				
	620		625	630
Ala Glu Val Lys Ile Asn Ile Arg Gln Thr Thr Thr Gly Ser Ala Val				



635	640	645
Pro Ile Arg Leu Phe Ile Thr Asn Glu Ser Gly Tyr Tyr Leu Asp Ile 650	655	660
Ser Leu Tyr Lys Glu Val Thr Asp Ser Arg Ser Gly Asn Ile Met Phe 665	670	675 680
His Ser Phe Gly Asn Lys Gln Gly Pro Gln His Gly Met Leu Ile Asn 685	690	695
Thr Pro Tyr Val Thr Lys Asp Leu Leu Gln Ala Lys Arg Phe Gln Ala 700	705	710
Gln Thr Leu Gly Thr Thr Tyr Ile Tyr Asp Phe Pro Glu Met Phe Arg 715	720	725
Gln Ala Ser Pro Ala Ala Gln Thr Arg Val His Val His Asn Val Gln 730	735	740
Ala Leu Phe Lys Leu Trp Gly Ser Pro Asp Lys Tyr Pro Lys Asp Ile 745	750	755 760
Leu Thr Tyr Thr Glu Leu Val Leu Asp Ser Gln Gly Gln Leu Val Glu 765	770	775
Met Asn Arg Leu Pro Gly Gly Asn Glu Val Gly Met Val Ala Phe Lys 780	785	790
Met Arg Phe Lys Thr Gln Glu Tyr Pro Glu Gly Arg Asp Val Ile Val 795	800	805
Ile Gly Asn Asp Ile Thr Phe Arg Ile Gly Ser Phe Gly Pro Gly Glu 810	815	820
Asp Leu Leu Tyr Leu Arg Ala Ser Glu Met Ala Arg Ala Glu Gly Ile 825	830	835 840
Pro Lys Ile Tyr Val Ala Ala Asn Ser Gly Ala Arg Ile Gly Met Ala 845	850	855
Glu Glu Ile Lys His Met Phe His Val Ala Trp Val Asp Pro Glu Asp 860	865	870
Pro His Lys Lys Lys Lys Thr Val Ala Phe Ser Ala Gly Asn Trp Ile 875	880	885
Arg Ser Leu Thr Lys Val Phe Phe Lys Gly Phe Lys Tyr Leu Tyr Leu 890	895	900
Thr Pro Gln Asp Tyr Thr Arg Ile Ser Ser Leu Asn Ser Val His Cys 905	910	915 920
Lys His Ile Glu Glu Gly Gly Glu Ser Arg Tyr Met Ile Thr Asp Ile 925	930	935
Ile Gly Lys Asp Asp Gly Leu Gly Val Glu Asn Leu Arg Gly Ser Gly		



	245		250		255
Glu Met Tyr	Ala Asp Lys Glu Ser Arg Gly Gly Val Leu Glu Pro Glu				
	260		265		270
Gly Thr Val	Glu Ile Lys Phe Arg Lys Lys Asp Leu Ile Lys Ser Met				
	275		280		285
Arg Arg Ile	Asp Pro Ala Tyr Lys Lys Leu Met Glu Gln Leu Gly Glu				
	290		295		300
Pro Asp Leu	Ser Asp Lys Asp Arg Lys Asp Leu Glu Gly Arg Leu Lys				
	305		310		315
Ala Arg Glu	Asp Leu Leu Leu Pro Ile Tyr His Gln Val Ala Val Gln				
	325		330		335
Phe Ala Asp	Phe His Asp Thr Pro Gly Arg Met Leu Glu Lys Gly Val				
	340		345		350
Ile Ser Asp	Ile Leu Glu Trp Lys Thr Ala Arg Thr Phe Leu Tyr Trp				
	355		360		365
Arg Leu Arg	Arg Leu Leu Leu Glu Asp Gln Val Lys Gln Glu Ile Leu				
	370		375		380
Gln Ala Ser	Gly Glu Leu Ser His Val His Ile Gln Ser Met Leu Arg				
	385		390		395
Arg Trp Phe	Val Glu Thr Glu Gly Ala Val Lys Ala Tyr Leu Trp Asp				
	405		410		415
Asn Asn Gln	Val Val Val Gln Trp Leu Glu Gln His Trp Gln Ala Gly				
	420		425		430
Asp Gly Pro	Arg Ser Thr Ile Arg Glu Asn Ile Thr Tyr Leu Lys His				
	435		440		445
Asp Ser Val	Leu Lys Thr Ile Arg Gly Leu Val Glu Glu Asn Pro Glu				
	450		455		460
Val Ala Val	Asp Cys Val Ile Tyr Leu Ser Gln His Ile Ser Pro Ala				
	465		470		475
Glu Arg Ala	Gln Val Val His Leu Leu Ser Thr Met Asp Ser Pro Ala				
	485		490		495

Ser Thr

<210>219

<211>1624

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(13) .. (1546)

<400>219

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		1					5					10				
cgc	ggg	gcc	ccc	ggc	ggc	gcc	tgc	gag	ctg	ggc	ccg	gcg	gcc	gag	gcg	96
Arg	Gly	Ala	Pro	Gly	Gly	Ala	Cys	Glu	Leu	Gly	Pro	Ala	Ala	Glu	Ala	
		15					20					25				
gcg	ccc	atg	agc	ctc	gcc	atc	cac	agc	acc	acg	ggc	acc	cg	tac	gac	144
Ala	Pro	Met	Ser	Leu	Ala	Ile	His	Ser	Thr	Thr	Gly	Thr	Arg	Tyr	Asp	
		30					35				40					
ctg	gcc	gtg	ccg	ccc	gac	gag	acg	gtg	gag	ggg	ctg	cg	aag	cgg	ttg	192
Leu	Ala	Val	Pro	Pro	Asp	Glu	Thr	Val	Glu	Gly	Leu	Arg	Lys	Arg	Leu	
		45				50				55					60	
tcc	cag	cg	ctc	aaa	gtg	ccc	aag	gag	cg	ctg	gct	ctt	ctc	cac	aaa	240
Ser	Gln	Arg	Leu	Lys	Val	Pro	Lys	Glu	Arg	Leu	Ala	Leu	Leu	His	Lys	
				65				70						75		
gac	acg	cgg	ctc	agt	tcg	ggg	aag	ctg	cag	gag	ttc	ggc	gtg	ggt	gat	288
Asp	Thr	Arg	Leu	Ser	Ser	Gly	Lys	Leu	Gln	Glu	Phe	Gly	Val	Gly	Asp	
			80					85					90			
ggc	agc	aag	ctg	acc	ttg	gta	ccc	acc	gtg	gaa	gcg	ggc	ctc	atg	tct	336
Gly	Ser	Lys	Leu	Thr	Leu	Val	Pro	Thr	Val	Glu	Ala	Gly	Leu	Met	Ser	
		95					100					105				
cag	gcc	tca	agg	ccg	gaa	cag	tcc	gtg	atg	caa	gct	ctc	gag	agt	ctc	384
Gln	Ala	Ser	Arg	Pro	Glu	Gln	Ser	Val	Met	Gln	Ala	Leu	Glu	Ser	Leu	
		110					115					120				
acg	gag	acg	cag	ccc	cca	gcg	gcg	ccc	ggg	ccg	ggc	cgg	gct	ggc	gga	432
Thr	Glu	Thr	Gln	Pro	Pro	Ala	Ala	Pro	Gly	Pro	Gly	Arg	Ala	Gly	Gly	
		125				130				135				140		
gga	ggc	ttc	cgg	aaa	tac	aga	ttc	att	tta	ttt	aag	cgt	ccg	tgg	cac	480
Gly	Gly	Phe	Arg	Lys	Tyr	Arg	Phe	Ile	Leu	Phe	Lys	Arg	Pro	Trp	His	
				145				150						155		
cga	cag	gga	ccc	cag	agc	cca	gag	agg	ggc	ggc	gag	agg	ccc	cag	gtc	528
Arg	Gln	Gly	Pro	Gln	Ser	Pro	Glu	Arg	Gly	Gly	Glu	Arg	Pro	Gln	Val	
			160					165					170			
agt	gac	ttc	ctg	tcg	ggc	cgt	tcg	cca	ctg	aca	ctg	gcc	ttg	cgt	gtg	576
Ser	Asp	Phe	Leu	Ser	Gly	Arg	Ser	Pro	Leu	Thr	Leu	Ala	Leu	Arg	Val	
			175					180					185			
ggc	gac	cac	atg	atg	ttc	gtg	cag	ctg	cag	ctc	gcg	gcc	cag	cac	gct	624
Gly	Asp	His	Met	Met	Phe	Val	Gln	Leu	Gln	Leu	Ala	Ala	Gln	His	Ala	
		190					195				200					
cca	ctg	caa	cac	cgc	cat	gtg	ctg	gcc	gct	gcg	gcc	gcc	gcc	gct	gct	672
Pro	Leu	Gln	His	Arg	His	Val	Leu	Ala	Ala	Ala	Ala	Ala	Ala	Ala	Ala	
		205				210				215				220		

gcg cgg ggg gac ccc agc ata gcc tcc ccc gtg tcc tcg ccc tgc cgg	720
Ala Arg Gly Asp Pro Ser Ile Ala Ser Pro Val Ser Ser Pro Cys Arg	
225 230 235	
ccg gtg tcc agt gcc gcc cga gtc ccc ccg gtg ccc acc agc ccg tcc	768
Pro Val Ser Ser Ala Ala Arg Val Pro Pro Val Pro Thr Ser Pro Ser	
240 245 250	
cct gca tct ccc tcg ccc atc aca gcc ggc tcc ttc cgg tcc cac gca	816
Pro Ala Ser Pro Ser Pro Ile Thr Ala Gly Ser Phe Arg Ser His Ala	
255 260 265	
gcc tcc acc acc tgc ccg gag cag atg gac tgc tcc ccc acg gcc agc	864
Ala Ser Thr Thr Cys Pro Glu Gln Met Asp Cys Ser Pro Thr Ala Ser	
270 275 280	
agc agt gcc agt cct ggt gcc agc acc acg tct acc cca ggg gcc agc	912
Ser Ser Ala Ser Pro Gly Ala Ser Thr Thr Ser Thr Pro Gly Ala Ser	
285 290 295 300	
cct gcc ccc cgc tcc cga aaa ccc ggc gcc gtc atc gag agc ttt gtg	960
Pro Ala Pro Arg Ser Arg Lys Pro Gly Ala Val Ile Glu Ser Phe Val	
305 310 315	
aat cac gcc ccg ggg gtc ttc tca ggg acc ttc tct ggc acg cta cac	1008
Asn His Ala Pro Gly Val Phe Ser Gly Thr Phe Ser Gly Thr Leu His	
320 325 330	
ccc aac tgc caa gac agc agc ggg ccg ccg ccg cgt gac atc ggc acc	1056
Pro Asn Cys Gln Asp Ser Ser Gly Arg Pro Arg Arg Asp Ile Gly Thr	
335 340 345	
atc ctg cag atc ctg aac gac ctc ctg agc gcc acc ccg cac tac cag	1104
Ile Leu Gln Ile Leu Asn Asp Leu Leu Ser Ala Thr Arg His Tyr Gln	
350 355 360	
ggc atg ccc cct tcg ctg gcc cag ctc cgc tgc cac gcc cag tgc tcc	1152
Gly Met Pro Pro Ser Leu Ala Gln Leu Arg Cys His Ala Gln Cys Ser	
365 370 375 380	
ccg gcc tca ccg gcc ccc gac ctg gcc ccc aga act acc tcc tgc gag	1200
Pro Ala Ser Pro Ala Pro Asp Leu Ala Pro Arg Thr Thr Ser Cys Glu	
385 390 395	
aag ctc acg gct gcc ccc tca gcc tcc ctg ctg cag ggc cag agc cag	1248
Lys Leu Thr Ala Ala Pro Ser Ala Ser Leu Leu Gln Gly Gln Ser Gln	
400 405 410	
atc cgc atg tgc aag ccc ccg ggt gac ccg ctt ccg cag aca gaa aac	1296
Ile Arg Met Cys Lys Pro Pro Gly Asp Arg Leu Arg Gln Thr Glu Asn	
415 420 425	
cgc gcc acg cgc tgc aag gtg gaa ccg ctg cag ctg ctt ctg cag cag	1344
Arg Ala Thr Arg Cys Lys Val Glu Arg Leu Gln Leu Leu Leu Gln Gln	
430 435 440	

aaa cgg ctc cgt aga aag gcc cgg cgg gac gcg cgg ggt ccg tac cac 1392  
 Lys Arg Leu Arg Arg Lys Ala Arg Arg Asp Ala Arg Gly Pro Tyr His  
 445 450 455 460

tgg tca ccc agc cgc aag gcc ggc cgc agc gac agc agt agc agc ggg 1440  
 Trp Ser Pro Ser Arg Lys Ala Gly Arg Ser Asp Ser Ser Ser Ser Gly  
 465 470 475

ggc ggc ggc agc ccc agc gag gcc tcc ggc ttg ggc ctc gac ttc gag 1488  
 Gly Gly Gly Ser Pro Ser Glu Ala Ser Gly Leu Gly Leu Asp Phe Glu  
 480 485 490

gac tcc gtg tgg aag cca gaa gtc aac cct gac atc aag tca gag ttc 1536  
 Asp Ser Val Trp Lys Pro Glu Val Asn Pro Asp Ile Lys Ser Glu Phe  
 495 500 505

gtg gtg gct taggatcttc ggateggcca cctcgcccc tcgcacccca 1585  
 Val Val Ala  
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gccagggcg gcggggactc cgagagcccc ggagagaac 1624

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 <211>511  
 <212>PRT  
 <213> Homo sapiens

<400>220  
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Leu Ala Ile His Ser Thr Thr Gly Thr Arg Tyr Asp Leu Ala Val Pro  
 35 40 45

Pro Asp Glu Thr Val Glu Gly Leu Arg Lys Arg Leu Ser Gln Arg Leu  
 50 55 60

Lys Val Pro Lys Glu Arg Leu Ala Leu Leu His Lys Asp Thr Arg Leu  
 65 70 75 80

Ser Ser Gly Lys Leu Gln Glu Phe Gly Val Gly Asp Gly Ser Lys Leu  
 85 90 95

Thr Leu Val Pro Thr Val Glu Ala Gly Leu Met Ser Gln Ala Ser Arg  
 100 105 110

Pro Glu Gln Ser Val Met Gln Ala Leu Glu Ser Leu Thr Glu Thr Gln  
 115 120 125

Pro Pro Ala Ala Pro Gly Pro Gly Arg Ala Gly Gly Gly Gly Phe Arg  
 130 135 140

Lys Tyr Arg Phe Ile Leu Phe Lys Arg Pro Trp His Arg Gln Gly Pro  
 145 150 155 160  
 Gln Ser Pro Glu Arg Gly Gly Glu Arg Pro Gln Val Ser Asp Phe Leu  
 165 170 175  
 Ser Gly Arg Ser Pro Leu Thr Leu Ala Leu Arg Val Gly Asp His Met  
 180 185 190  
 Met Phe Val Gln Leu Gln Leu Ala Ala Gln His Ala Pro Leu Gln His  
 195 200 205  
 Arg His Val Leu Ala Ala Ala Ala Ala Ala Ala Ala Arg Gly Asp  
 210 215 220  
 Pro Ser Ile Ala Ser Pro Val Ser Ser Pro Cys Arg Pro Val Ser Ser  
 225 230 235 240  
 Ala Ala Arg Val Pro Pro Val Pro Thr Ser Pro Ser Pro Ala Ser Pro  
 245 250 255  
 Ser Pro Ile Thr Ala Gly Ser Phe Arg Ser His Ala Ala Ser Thr Thr  
 260 265 270  
 Cys Pro Glu Gln Met Asp Cys Ser Pro Thr Ala Ser Ser Ser Ala Ser  
 275 280 285  
 Pro Gly Ala Ser Thr Thr Ser Thr Pro Gly Ala Ser Pro Ala Pro Arg  
 290 295 300  
 Ser Arg Lys Pro Gly Ala Val Ile Glu Ser Phe Val Asn His Ala Pro  
 305 310 315 320  
 Gly Val Phe Ser Gly Thr Phe Ser Gly Thr Leu His Pro Asn Cys Gln  
 325 330 335  
 Asp Ser Ser Gly Arg Pro Arg Arg Asp Ile Gly Thr Ile Leu Gln Ile  
 340 345 350  
 Leu Asn Asp Leu Leu Ser Ala Thr Arg His Tyr Gln Gly Met Pro Pro  
 355 360 365  
 Ser Leu Ala Gln Leu Arg Cys His Ala Gln Cys Ser Pro Ala Ser Pro  
 370 375 380  
 Ala Pro Asp Leu Ala Pro Arg Thr Thr Ser Cys Glu Lys Leu Thr Ala  
 385 390 395 400  
 Ala Pro Ser Ala Ser Leu Leu Gln Gly Gln Ser Gln Ile Arg Met Cys  
 405 410 415  
 Lys Pro Pro Gly Asp Arg Leu Arg Gln Thr Glu Asn Arg Ala Thr Arg  
 420 425 430  
 Cys Lys Val Glu Arg Leu Gln Leu Leu Leu Gln Gln Lys Arg Leu Arg  
 435 440 445

Arg Lys Ala Arg Arg Asp Ala Arg Gly Pro Tyr His Trp Ser Pro Ser  
450 455 460

Arg Lys Ala Gly Arg Ser Asp Ser Ser Ser Ser Gly Gly Gly Gly Ser  
465 470 475 480

Pro Ser Glu Ala Ser Gly Leu Gly Leu Asp Phe Glu Asp Ser Val Trp  
485 490 495

Lys Pro Glu Val Asn Pro Asp Ile Lys Ser Glu Phe Val Val Ala  
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<210>221

<211>1034

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

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<400>221

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Met Ser Gly Pro Asp Ile Lys Thr Pro Thr  
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gcc atc cag atc tgc cgg att atg cgg gac gct aat gtg gcc cgc aat 98  
Ala Ile Gln Ile Cys Arg Ile Met Arg Asp Ala Asn Val Ala Arg Asn  
15 20 25

gtc tac ggc ggg acc atc ctg aag atg atc aaa gag gcg ggc gcc atc 146  
Val Tyr Gly Gly Thr Ile Leu Lys Met Ile Lys Glu Ala Gly Ala Ile  
30 35 40

atc agc acc cgg cat tgc aat ccg cag aac ggg gat cgc tgt gtg gcc 194  
Ile Ser Thr Arg His Cys Asn Pro Gln Asn Gly Asp Arg Cys Val Ala  
45 50 55

gct ctg gct cgg gtc gag tgc acc cac ttc ctg tgg ccc atg tgc atc 242  
Ala Leu Ala Arg Val Glu Cys Thr His Phe Leu Trp Pro Met Cys Ile  
60 65 70

ggg gag gtg gcc cac gtc agc gcg gag atc acc tac acc tcc aag cac 290  
Gly Glu Val Ala His Val Ser Ala Glu Ile Thr Tyr Thr Ser Lys His  
75 80 85 90

tct gtg gag gtg cag gtc aac atg atg tcc gaa aac atc ctc aca ggt 338  
Ser Val Glu Val Gln Val Asn Met Met Ser Glu Asn Ile Leu Thr Gly  
95 100 105

gcc aaa aag ctg acc aat aag gcc acc ctc tgg tat gcg ccc ctg tcg 386  
Ala Lys Lys Leu Thr Asn Lys Ala Thr Leu Trp Tyr Ala Pro Leu Ser  
110 115 120

ctg acg aac gtg gac aag gtc ctc gaa gag cct cct gtt gtg tat ttc 434  
Leu Thr Asn Val Asp Lys Val Leu Glu Glu Pro Pro Val Val Tyr Phe  
125 130 135



cgg cag gag cag gag gag gag ggc cag aag cgg tac aaa acc cag aag	482
Arg Gln Glu Gln Glu Glu Glu Gly Gln Lys Arg Tyr Lys Thr Gln Lys	
140 145 150	
ctg gag cgc atg gag acc aac tgg agg aac ggg gac atc gtc cag cca	530
Leu Glu Arg Met Glu Thr Asn Trp Arg Asn Gly Asp Ile Val Gln Pro	
155 160 165 170	
gtc ctc aac cca gag ccg aac act gtc agc tac agc cag tcc agc ttg	578
Val Leu Asn Pro Glu Pro Asn Thr Val Ser Tyr Ser Gln Ser Ser Leu	
175 180 185	
atc cac ctg gtg ggg cct tca gac tgt acc ctg cac agc ttc gtg cat	626
Ile His Leu Val Gly Pro Ser Asp Cys Thr Leu His Ser Phe Val His	
190 195 200	
gaa ggg gtg acc atg aag gtc atg gac gag gtc gcc ggg atc ttg gct	674
Glu Gly Val Thr Met Lys Val Met Asp Glu Val Ala Gly Ile Leu Ala	
205 210 215	
gca cgc cac tgc aag acc aac ctc gtc aca gcc tcc atg gag gcc att	722
Ala Arg His Cys Lys Thr Asn Leu Val Thr Ala Ser Met Glu Ala Ile	
220 225 230	
aat ttt gac aac aag atc aga aaa ggc tgc atc aag acc atc tcc gga	770
Asn Phe Asp Asn Lys Ile Arg Lys Gly Cys Ile Lys Thr Ile Ser Gly	
235 240 245 250	
cgc atg acc ttc acg agc aat aag tcc gta gag atc gag gtc ttg gtg	818
Arg Met Thr Phe Thr Ser Asn Lys Ser Val Glu Ile Glu Val Leu Val	
255 260 265	
gat gcc gac tgt gtt gtg gac agc tct cag aag cgc tac agg gcc gcc	866
Asp Ala Asp Cys Val Val Asp Ser Ser Gln Lys Arg Tyr Arg Ala Ala	
270 275 280	
agt gtc ttc acc tat gtg tcg ctg agc cag gaa ggc agg tcg ctg ccc	914
Ser Val Phe Thr Tyr Val Ser Leu Ser Gln Glu Gly Arg Ser Leu Pro	
285 290 295	
atg ccc cag ctc gtg ccg gag acc cag gac gag aag ggc ttt gag gcc	962
Met Pro Gln Leu Val Pro Glu Thr Gln Asp Glu Lys Gly Phe Glu Ala	
300 305 310	
tggtg ctc ggt ggc tca cgc cta taatcccagc acttttaggat gctgaggcag	1013
Trp Leu Gly Gly Ser Arg Leu	
315 320	
gcggatcact tgacgtcagg a	1034

<210>222

<211>321

<212>PRT

<213> Homo sapiens

<400>222

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Ile Met Arg Asp Ala Asn Val Ala Arg Asn Val Tyr Gly Gly Thr Ile  
20 25 30  
Leu Lys Met Ile Lys Glu Ala Gly Ala Ile Ile Ser Thr Arg His Cys  
35 40 45  
Asn Pro Gln Asn Gly Asp Arg Cys Val Ala Ala Leu Ala Arg Val Glu  
50 55 60  
Cys Thr His Phe Leu Trp Pro Met Cys Ile Gly Glu Val Ala His Val  
65 70 75 80  
Ser Ala Glu Ile Thr Tyr Thr Ser Lys His Ser Val Glu Val Gln Val  
85 90 95  
Asn Met Met Ser Glu Asn Ile Leu Thr Gly Ala Lys Lys Leu Thr Asn  
100 105 110  
Lys Ala Thr Leu Trp Tyr Ala Pro Leu Ser Leu Thr Asn Val Asp Lys  
115 120 125  
Val Leu Glu Glu Pro Pro Val Val Tyr Phe Arg Gln Glu Gln Glu Glu  
130 135 140  
Glu Gly Gln Lys Arg Tyr Lys Thr Gln Lys Leu Glu Arg Met Glu Thr  
145 150 155 160  
Asn Trp Arg Asn Gly Asp Ile Val Gln Pro Val Leu Asn Pro Glu Pro  
165 170 175  
Asn Thr Val Ser Tyr Ser Gln Ser Ser Leu Ile His Leu Val Gly Pro  
180 185 190  
Ser Asp Cys Thr Leu His Ser Phe Val His Glu Gly Val Thr Met Lys  
195 200 205  
Val Met Asp Glu Val Ala Gly Ile Leu Ala Ala Arg His Cys Lys Thr  
210 215 220  
Asn Leu Val Thr Ala Ser Met Glu Ala Ile Asn Phe Asp Asn Lys Ile  
225 230 235 240  
Arg Lys Gly Cys Ile Lys Thr Ile Ser Gly Arg Met Thr Phe Thr Ser  
245 250 255  
Asn Lys Ser Val Glu Ile Glu Val Leu Val Asp Ala Asp Cys Val Val  
260 265 270  
Asp Ser Ser Gln Lys Arg Tyr Arg Ala Ala Ser Val Phe Thr Tyr Val  
275 280 285  
Ser Leu Ser Gln Glu Gly Arg Ser Leu Pro Met Pro Gln Leu Val Pro  
290 295 300

Glu Thr Gln Asp Glu Lys Gly Phe Glu Ala Trp Leu Gly Gly Ser Arg  
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Leu

<210>223

<211>4203

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(21)..(4191)

<400>223

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                          1             5             10

ttg aga aat ctg cca gta atg ggg gat gga cta gaa act tcc caa atg      98
Leu Arg Asn Leu Pro Val Met Gly Asp Gly Leu Glu Thr Ser Gln Met
                      15             20             25

tct aca aca cag gcc cag gcc caa ccc cag cca gcc aac gca gcc agc      146
Ser Thr Thr Gln Ala Gln Ala Gln Pro Gln Pro Ala Asn Ala Ala Ser
                      30             35             40

acc aac ccc ccg ccc cca gag acc tcc aac cct aac aag ccc aag agg      194
Thr Asn Pro Pro Pro Pro Glu Thr Ser Asn Pro Asn Lys Pro Lys Arg
                      45             50             55

cag acc aac caa ctg caa tac ctg ctc aga gtg gtg ctc aag aca cta      242
Gln Thr Asn Gln Leu Gln Tyr Leu Leu Arg Val Val Leu Lys Thr Leu
                      60             65             70

tgg aaa cac cag ttt gca tgg cct ttc cag cag cct gtg gat gcc gtc      290
Trp Lys His Gln Phe Ala Trp Pro Phe Gln Gln Pro Val Asp Ala Val
                      75             80             85             90

aag ctg aac ctc cct gat tac tat aag atc att aaa acg cct atg gat      338
Lys Leu Asn Leu Pro Asp Tyr Tyr Lys Ile Ile Lys Thr Pro Met Asp
                      95             100             105

atg gga aca ata aag aag cgc ttg gaa aac aac tat tac tgg aat gct      386
Met Gly Thr Ile Lys Lys Arg Leu Glu Asn Asn Tyr Tyr Trp Asn Ala
                      110             115             120

cag gaa tgt atc cag gac ttc aac act atg ttt aca aat tgt tac atc      434
Gln Glu Cys Ile Gln Asp Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile
                      125             130             135

tac aac aag cct gga gat gac ata gtc tta atg gca gaa gct ctg gaa      482
Tyr Asn Lys Pro Gly Asp Asp Ile Val Leu Met Ala Glu Ala Leu Glu
                      140             145             150

aag ctc ttc ttg caa aaa ata aat gag cta ccc aca gaa gaa acc gag      530

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Lys	Leu	Phe	Leu	Gln	Lys	Ile	Asn	Glu	Leu	Pro	Thr	Glu	Glu	Thr	Glu		
155					160					165					170		
atc	atg	ata	gtc	cag	gca	aaa	gga	aga	gga	cgt	ggg	agg	aaa	gaa	aca	578	
Ile	Met	Ile	Val	Gln	Ala	Lys	Gly	Arg	Gly	Arg	Gly	Arg	Lys	Glu	Thr		
				175					180					185			
ggt	aca	gca	aaa	cct	ggc	gtt	tcc	acg	gta	cca	aac	aca	act	caa	gca	626	
Gly	Thr	Ala	Lys	Pro	Gly	Val	Ser	Thr	Val	Pro	Asn	Thr	Thr	Gln	Ala		
			190					195					200				
tcg	act	cct	ccg	cag	acc	cag	acc	cct	cag	ccg	aat	cct	cct	cct	gtg	674	
Ser	Thr	Pro	Pro	Gln	Thr	Gln	Thr	Pro	Gln	Pro	Asn	Pro	Pro	Pro	Val		
		205					210					215					
cag	gcc	acg	cct	cac	ccc	ttc	cct	gcc	gtc	acc	ccg	gac	ctc	atc	gtc	722	
Gln	Ala	Thr	Pro	His	Pro	Phe	Pro	Ala	Val	Thr	Pro	Asp	Leu	Ile	Val		
	220					225				230							
cag	acc	cct	gtc	atg	aca	gtg	gtg	cct	ccc	cag	cca	ctg	cag	acg	ccc	770	
Gln	Thr	Pro	Val	Met	Thr	Val	Val	Pro	Pro	Gln	Pro	Leu	Gln	Thr	Pro		
235					240				245					250			
ccg	cca	gtg	ccc	ccc	cag	cca	caa	ccc	cca	ccc	gct	cca	gct	ccc	cag	818	
Pro	Pro	Val	Pro	Pro	Gln	Pro	Gln	Pro	Pro	Pro	Ala	Pro	Ala	Pro	Gln		
				255				260					265				
ccc	gta	cag	agc	cac	cca	ccc	atc	atc	gcg	gcc	acc	cca	cag	cct	gtg	866	
Pro	Val	Gln	Ser	His	Pro	Pro	Ile	Ile	Ala	Ala	Thr	Pro	Gln	Pro	Val		
			270				275						280				
aag	aca	aag	aag	gga	gtg	aag	agg	aaa	gca	gac	acc	acc	acc	ccc	acc	914	
Lys	Thr	Lys	Lys	Gly	Val	Lys	Arg	Lys	Ala	Asp	Thr	Thr	Thr	Pro	Thr		
		285					290					295					
acc	att	gac	ccc	att	cac	gag	cca	ccc	tcg	ctg	ccc	ccg	gag	ccc	aag	962	
Thr	Ile	Asp	Pro	Ile	His	Glu	Pro	Pro	Ser	Leu	Pro	Pro	Glu	Pro	Lys		
	300					305				310							
acc	acc	aag	ctg	ggc	cag	cgg	cgg	gag	agc	agc	cgg	cct	gtg	aaa	cct	1010	
Thr	Thr	Lys	Leu	Gly	Gln	Arg	Arg	Glu	Ser	Ser	Arg	Pro	Val	Lys	Pro		
315					320				325					330			
cca	aag	aag	gac	gtg	ccc	gac	tct	cag	cag	cac	cca	gca	cca	gag	aag	1058	
Pro	Lys	Lys	Asp	Val	Pro	Asp	Ser	Gln	Gln	His	Pro	Ala	Pro	Glu	Lys		
				335				340					345				
agc	agc	aag	gtc	tcg	gag	cag	ctc	aag	tgc	tgc	agc	ggc	atc	ctc	aag	1106	
Ser	Ser	Lys	Val	Ser	Glu	Gln	Leu	Lys	Cys	Cys	Ser	Gly	Ile	Leu	Lys		
			350				355					360					
gag	atg	ttt	gcc	aag	aag	cac	gcc	gcc	tac	gcc	tgg	ccc	ttc	tac	aag	1154	
Glu	Met	Phe	Ala	Lys	Lys	His	Ala	Ala	Tyr	Ala	Trp	Pro	Phe	Tyr	Lys		
		365				370					375						
cct	gtg	gac	gtg	gag	gca	ctg	ggc	cta	cac	gac	tac	tgt	gac	atc	atc	1202	
Pro	Val	Asp	Val	Glu	Ala	Leu	Gly	Leu	His	Asp	Tyr	Cys	Asp	Ile	Ile		

380	385	390	
aag cac ccc atg gac atg agc aca atc aag tct aaa ctg gag gcc cgt			1250
Lys His Pro Met Asp Met Ser Thr Ile Lys Ser Lys Leu Glu Ala Arg			
395	400	405	410
gag tac cgt gat gct cag gag ttt ggt gct gac gtc cga ttg atg ttc			1298
Glu Tyr Arg Asp Ala Gln Glu Phe Gly Ala Asp Val Arg Leu Met Phe			
	415	420	425
tcc aac tgc tat aag tac aac cct cct gac cat gag gtg gtg gcc atg			1346
Ser Asn Cys Tyr Lys Tyr Asn Pro Pro Asp His Glu Val Val Ala Met			
	430	435	440
gcc cgc aag ctc cag gat gtg ttc gaa atg cgc ttt gcc aag atg ccg			1394
Ala Arg Lys Leu Gln Asp Val Phe Glu Met Arg Phe Ala Lys Met Pro			
	445	450	455
gac gag cct gag gag cca gtg gtg gcc gtg tcc tcc ccg gca gtg ccc			1442
Asp Glu Pro Glu Glu Pro Val Val Ala Val Ser Ser Pro Ala Val Pro			
	460	465	470
cct ccc acc aag gtt gtg gcc ccg ccc tca tcc agc gac agc agc agc			1490
Pro Pro Thr Lys Val Val Ala Pro Pro Ser Ser Ser Asp Ser Ser Ser			
	475	480	485
gat agc tcc tcg gac agt gac agt tcg act gat gac tct gag gag gag			1538
Asp Ser Ser Ser Asp Ser Asp Ser Ser Thr Asp Asp Ser Glu Glu Glu			
	495	500	505
cga gcc cag cgg ctg gct gag ctc cag gag cag ctc aaa gcc gtg cac			1586
Arg Ala Gln Arg Leu Ala Glu Leu Gln Glu Gln Leu Lys Ala Val His			
	510	515	520
gag cag ctt gca gcc ctc tct cag ccc cag cag aac aaa cca aag aaa			1634
Glu Gln Leu Ala Ala Leu Ser Gln Pro Gln Gln Asn Lys Pro Lys Lys			
	525	530	535
aag gag aaa gac aag aag gaa aag aaa aaa gaa aag cac aaa agg aaa			1682
Lys Glu Lys Asp Lys Lys Glu Lys Lys Lys Glu Lys His Lys Arg Lys			
	540	545	550
gag gaa gtg gaa gag aat aaa aaa agc aaa gcc aag gaa cct cct cct			1730
Glu Glu Val Glu Glu Asn Lys Lys Ser Lys Ala Lys Glu Pro Pro Pro			
	555	560	570
aaa aag acg aag aaa aat aat agc agc aac agc aat gtg agc aag aag			1778
Lys Lys Thr Lys Lys Asn Asn Ser Ser Asn Ser Asn Val Ser Lys Lys			
	575	580	585
gag cca gcg ccc atg aag agc aag ccc cct ccc acg tat gag tcg gag			1826
Glu Pro Ala Pro Met Lys Ser Lys Pro Pro Pro Thr Tyr Glu Ser Glu			
	590	595	600
gaa gag gac aag tgc aag cct atg tcc tat gag gag aag cgg cag ctc			1874
Glu Glu Asp Lys Cys Lys Pro Met Ser Tyr Glu Glu Lys Arg Gln Leu			
	605	610	615

agc ttg gac atc aac aag ctc ccc ggc gag aag ctg ggc cgc gtg gtg	1922
Ser Leu Asp Ile Asn Lys Leu Pro Gly Glu Lys Leu Gly Arg Val Val	
620 625 630	
cac atc atc cag tca cgg gag ccc tcc ctg aag aat tcc aac ccc gac	1970
His Ile Ile Gln Ser Arg Glu Pro Ser Leu Lys Asn Ser Asn Pro Asp	
635 640 645 650	
gag att gaa atc gac ttt gag acc ctg aag ccg tcc aca ctg cgt gag	2018
Glu Ile Glu Ile Asp Phe Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu	
655 660 665	
ctg gag cgc tat gtc acc tcc tgt ttg cgg aag aaa agg aaa cct caa	2066
Leu Glu Arg Tyr Val Thr Ser Cys Leu Arg Lys Lys Arg Lys Pro Gln	
670 675 680	
gct gag aaa gtt gat gtg att gcc ggc tcc tcc aag atg aag ggc ttc	2114
Ala Glu Lys Val Asp Val Ile Ala Gly Ser Ser Lys Met Lys Gly Phe	
685 690 695	
tcg tcc tca gag tcg gag agc tcc agt gag tcc agc tcc tct gac agc	2162
Ser Ser Ser Glu Ser Glu Ser Ser Ser Glu Ser Ser Ser Ser Asp Ser	
700 705 710	
gaa gac tcc gaa aca gag atg gct ccg aag tca aaa aag aag ggg cac	2210
Glu Asp Ser Glu Thr Glu Met Ala Pro Lys Ser Lys Lys Lys Gly His	
715 720 725 730	
ccc ggg agg gag cag aag cag cac cat cat cac cac cat cag cag atg	2258
Pro Gly Arg Glu Gln Lys Gln His His His His His His Gln Gln Met	
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Ile Leu His Leu Pro Gln Pro Glu Leu Pro Pro His Leu Pro Gln Pro	
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Ser Asp Pro Tyr Ser Thr Gly His Leu Arg Glu Ala Pro Ser Pro Leu	
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Arg	Glu	Asp	Glu	Asp	Ala	Leu	Glu	Gln	Ala	Arg	Arg	Ala	His	Glu	Glu		



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Gln Ala Gln Ser Ser Gln Pro Gln Ser Met Leu Asp Gln Gln Arg Glu			
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Glu Thr Ser Asn Pro Asn Lys Pro Lys Arg Gln Thr Asn Gln Leu Gln			
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Tyr Leu Leu Arg Val Val Leu Lys Thr Leu Trp Lys His Gln Phe Ala			
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Trp Pro Phe Gln Gln Pro Val Asp Ala Val Lys Leu Asn Leu Pro Asp			
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Tyr Tyr Lys Ile Ile Lys Thr Pro Met Asp Met Gly Thr Ile Lys Lys			
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Arg Leu Glu Asn Asn Tyr Tyr Trp Asn Ala Gln Glu Cys Ile Gln Asp			
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Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Gly Asp			

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Ile Asn Glu Leu Pro	Thr Glu Glu Thr Glu	Ile Met Ile Val Gln Ala
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Lys Gly Arg Gly Arg	Gly Arg Lys Glu Thr	Gly Thr Ala Lys Pro Gly
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Val Ser Thr Val Pro	Asn Thr Thr Gln Ala	Ser Thr Pro Pro Gln Thr
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Gln Thr Pro Gln Pro	Asn Pro Pro Pro Val	Gln Ala Thr Pro His Pro
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Phe Pro Ala Val Thr	Pro Asp Leu Ile Val	Gln Thr Pro Val Met Thr
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Val Val Pro Pro Gln	Pro Leu Gln Thr Pro	Pro Pro Val Pro Pro Gln
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Pro Gln Pro Pro Pro	Ala Pro Ala Pro Gln	Pro Val Gln Ser His Pro
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Pro Ile Ile Ala Ala	Thr Pro Gln Pro Val	Lys Thr Lys Lys Gly Val
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Lys Arg Lys Ala Asp	Thr Thr Thr Pro Thr	Thr Thr Ile Asp Pro Ile His
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Glu Pro Pro Ser Leu	Pro Pro Glu Pro Lys	Thr Thr Lys Leu Gly Gln
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Arg Arg Glu Ser Ser	Arg Pro Val Lys Pro	Pro Pro Lys Lys Asp Val Pro
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Asp Ser Gln Gln His	Pro Ala Pro Glu Lys	Ser Ser Lys Val Ser Glu
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Gln Leu Lys Cys Cys	Ser Gly Ile Leu Lys	Glu Met Phe Ala Lys Lys
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His Ala Ala Tyr Ala	Trp Pro Phe Tyr Lys	Pro Val Asp Val Glu Ala
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Leu Pro Gly Glu Lys Leu Gly Arg Val Val His Ile Ile Gln Ser Arg				
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Glu Pro Ser Leu Lys Asn Ser Asn Pro Asp Glu Ile Glu Ile Asp Phe				
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Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg Tyr Val Thr				
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Ser Cys Leu Arg Lys Lys Arg Lys Pro Gln Ala Glu Lys Val Asp Val				
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Ile Ala Gly Ser Ser Lys Met Lys Gly Phe Ser Ser Ser Glu Ser Glu				
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Ser Ser Ser Glu Ser Ser Ser Ser Asp Ser Glu Asp Ser Glu Thr Glu				
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Met Ala Pro Lys Ser Lys Lys Lys Gly His Pro Gly Arg Glu Gln Lys				
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Gln His His His His His His Gln Gln Met Gln Gln Ala Pro Ala Pro				

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Lys Phe Glu Asn Val Lys Trp Ile Tyr Asp Gln Glu Ala Gln Glu Phe	
330 335 340	
aat att acc cac cta caa caa ctg tgg gct aat cat gct gtc aaa act	1107
Asn Ile Thr His Leu Gln Gln Leu Trp Ala Asn His Ala Val Lys Thr	
345 350 355	
cac atg ttg tat agt atg cta caa gga ctg gac act gtt cca gta ccc	1155
His Met Leu Tyr Ser Met Leu Gln Gly Leu Asp Thr Val Pro Val Pro	
360 365 370 375	
tgt gga ata gga cca aag atg gat gga atg aca gaa tgg gga aat gtt	1203

Cys Gly Ile Gly Pro Lys Met Asp Gly Met Thr Glu Trp Gly Asn Val	
380 385 390	
aag ccc tct gtc ata aag cag acc agt gcc ttt gta gaa gga gtg aag	1251
Lys Pro Ser Val Ile Lys Gln Thr Ser Ala Phe Val Glu Gly Val Lys	
395 400 405	
atg cgc aca tat aag ccc ctc atg gac cgt cct aaa tgc caa gga ctg	1299
Met Arg Thr Tyr Lys Pro Leu Met Asp Arg Pro Lys Cys Gln Gly Leu	
410 415 420	
gaa tcc cgg atc cag cat ttt gta cgt agg gga cga att gag cac cca	1347
Glu Ser Arg Ile Gln His Phe Val Arg Arg Gly Arg Ile Glu His Pro	
425 430 435	
cat tta ttc cat gag gaa gaa aca aaa gcc aaa agg gac tgt aat gac	1395
His Leu Phe His Glu Glu Glu Thr Lys Ala Lys Arg Asp Cys Asn Asp	
440 445 450 455	
aca cta gag gaa gag aat act aat ttg gag aca cca acg aag agg gtc	1443
Thr Leu Glu Glu Glu Asn Thr Asn Leu Glu Thr Pro Thr Lys Arg Val	
460 465 470	
tgt gtt gac aca gaa att aaa agc atc att taaccataga caatttgcca	1493
Cys Val Asp Thr Glu Ile Lys Ser Ile Ile	
475 480	
ggatctagga accacctaag gtaggtgga cagaaaagga aaaaaaaaaa	1543
aatttacttg caagtactag gaattcagat gtcagctct taaaaaaaaa	1593
aaaaaagcaa aaagactaaa gccctattaa ggaagttatt gctttaataa	1643
gaaatttcaa atattctctt atcccggtcc aaaaggatta agcgattaaa	1693
gaacgtaaaa tggagatgta ttacatata cctggaaacc tgtgccttgt	1743
attcaaattc attaaagcct aatcctgcaa gaa	1776

<210>226  
 <211>481  
 <212>PRT  
 <213> Homo sapiens  
  
 <400>226



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 Arg Val Arg Glu Leu Glu Gln Glu Val Gln Arg Leu Lys Lys Glu Gln  
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 Ala Lys Asn Lys Glu Asp Ser Asn Ile Arg Glu Asn Ser Ala Gly Ala  
 35 40 45  
 Gly Lys Thr Lys Arg Ala Phe Asp Phe Ser Ala His Gly Arg Arg His  
 50 55 60  
 Val Ala Leu Arg Ile Ala Tyr Met Gly Trp Gly Tyr Gln Gly Phe Ala  
 65 70 75 80  
 Ser Gln Glu Asn Thr Asn Asn Thr Ile Glu Glu Lys Leu Phe Glu Ala  
 85 90 95  
 Leu Thr Lys Thr Arg Leu Val Glu Ser Arg Gln Thr Ser Asn Tyr His  
 100 105 110  
 Arg Cys Gly Arg Thr Asp Lys Gly Val Ser Ala Phe Gly Gln Val Ile  
 115 120 125  
 Ser Leu Asp Leu Arg Ser Gln Phe Pro Arg Gly Arg Asp Ser Glu Asp  
 130 135 140  
 Phe Asn Val Lys Glu Glu Ala Asn Ala Ala Glu Glu Ile Arg Tyr  
 145 150 155 160  
 Thr His Ile Leu Asn Arg Val Leu Pro Pro Asp Ile Arg Ile Leu Ala  
 165 170 175  
 Trp Ala Pro Val Glu Pro Ser Phe Ser Ala Arg Phe Ser Cys Leu Glu  
 180 185 190  
 Arg Thr Tyr Arg Tyr Phe Phe Pro Arg Ala Asp Leu Asp Ile Val Thr  
 195 200 205  
 Met Asp Tyr Ala Ala Gln Lys Tyr Val Gly Thr His Asp Phe Arg Asn  
 210 215 220  
 Leu Cys Lys Met Asp Val Ala Asn Gly Val Ile Asn Phe Gln Arg Thr  
 225 230 235 240  
 Ile Leu Ser Ala Gln Val Gln Leu Val Gly Gln Ser Pro Gly Glu Gly  
 245 250 255  
 Arg Trp Gln Glu Pro Phe Gln Leu Cys Gln Phe Glu Val Thr Gly Gln  
 260 265 270  
 Ala Phe Leu Tyr His Gln Val Arg Cys Met Met Ala Ile Leu Phe Leu  
 275 280 285  
 Ile Gly Gln Gly Met Glu Lys Pro Glu Ile Ile Asp Glu Leu Leu Asn  
 290 295 300

Ile Glu Lys Asn Pro Gln Lys Pro Gln Tyr Ser Met Ala Val Glu Phe  
 305 310 315 320  
 Pro Leu Val Leu Tyr Asp Cys Lys Phe Glu Asn Val Lys Trp Ile Tyr  
 325 330 335  
 Asp Gln Glu Ala Gln Glu Phe Asn Ile Thr His Leu Gln Gln Leu Trp  
 340 345 350  
 Ala Asn His Ala Val Lys Thr His Met Leu Tyr Ser Met Leu Gln Gly  
 355 360 365  
 Leu Asp Thr Val Pro Val Pro Cys Gly Ile Gly Pro Lys Met Asp Gly  
 370 375 380  
 Met Thr Glu Trp Gly Asn Val Lys Pro Ser Val Ile Lys Gln Thr Ser  
 385 390 395 400  
 Ala Phe Val Glu Gly Val Lys Met Arg Thr Tyr Lys Pro Leu Met Asp  
 405 410 415  
 Arg Pro Lys Cys Gln Gly Leu Glu Ser Arg Ile Gln His Phe Val Arg  
 420 425 430  
 Arg Gly Arg Ile Glu His Pro His Leu Phe His Glu Glu Glu Thr Lys  
 435 440 445  
 Ala Lys Arg Asp Cys Asn Asp Thr Leu Glu Glu Glu Asn Thr Asn Leu  
 450 455 460  
 Glu Thr Pro Thr Lys Arg Val Cys Val Asp Thr Glu Ile Lys Ser Ile  
 465 470 475 480  
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<210>227

<211>1508

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(2)..(1445)

<400>227

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 aaa aga gta cga gaa ctg gag caa gag gtg caa aga ctt aaa aag gaa 94  
 Lys Arg Val Arg Glu Leu Glu Gln Glu Val Gln Arg Leu Lys Lys Glu  
 20 25 30  
 cag gcc aaa aat aag gag gac tca aac att aga gaa aat tca gca gga 142  
 Gln Ala Lys Asn Lys Glu Asp Ser Asn Ile Arg Glu Asn Ser Ala Gly  
 35 40 45

gct gga aaa act aag cgt gca ttt gat ttc agt gct cat ggc cga aga	190
Ala Gly Lys Thr Lys Arg Ala Phe Asp Phe Ser Ala His Gly Arg Arg	
50 55 60	
cac gta gcc cta aga ata gcc tat atg ggc tgg gga tac cag ggc ttt	238
His Val Ala Leu Arg Ile Ala Tyr Met Gly Trp Gly Tyr Gln Gly Phe	
65 70 75	
gct agt cag gaa aac aca aat aat acc att gaa gag aaa ctg ttt gaa	286
Ala Ser Gln Glu Asn Thr Asn Asn Thr Ile Glu Glu Lys Leu Phe Glu	
80 85 90 95	
gct cta acc aag act cga cta gta gaa agc aga cag aca tcc aac tat	334
Ala Leu Thr Lys Thr Arg Leu Val Glu Ser Arg Gln Thr Ser Asn Tyr	
100 105 110	
cac cga tgt ggg aga aca gat aaa gga gtt agt gcc ttt gga cag gtg	382
His Arg Cys Gly Arg Thr Asp Lys Gly Val Ser Ala Phe Gly Gln Val	
115 120 125	
atc tca ctt gac ctt cgc tct cag ttt cca agg ggc agg gat tcc gag	430
Ile Ser Leu Asp Leu Arg Ser Gln Phe Pro Arg Gly Arg Asp Ser Glu	
130 135 140	
gac ttt aat gta aaa gag gag gct aat gct gct gct gaa gag atc cgt	478
Asp Phe Asn Val Lys Glu Glu Ala Asn Ala Ala Glu Glu Ile Arg	
145 150 155	
tat acc cac att ctc aat cgg gta ctc cct cca gac atc cgt ata ttg	526
Tyr Thr His Ile Leu Asn Arg Val Leu Pro Pro Asp Ile Arg Ile Leu	
160 165 170 175	
gcc tgg gcc cct gta gaa cca agc ttc agt gct agg ttc agc tgc ctt	574
Ala Trp Ala Pro Val Glu Pro Ser Phe Ser Ala Arg Phe Ser Cys Leu	
180 185 190	
gag cgg act tac cgc tat ttt ttc cct cgt gct gat tta gat att gta	622
Glu Arg Thr Tyr Arg Tyr Phe Phe Pro Arg Ala Asp Leu Asp Ile Val	
195 200 205	
acc atg gat tat gca gct cag aag tat gtt ggc acc cat gat ttc agg	670
Thr Met Asp Tyr Ala Ala Gln Lys Tyr Val Gly Thr His Asp Phe Arg	
210 215 220	
aac ttg tgt aaa atg gat gta gcc aac ggt gtg att aat ttt cag agg	718
Asn Leu Cys Lys Met Asp Val Ala Asn Gly Val Ile Asn Phe Gln Arg	
225 230 235	
act att cta tct gct caa gta cag cta gtg ggc cag agc cca ggt gag	766
Thr Ile Leu Ser Ala Gln Val Gln Leu Val Gly Gln Ser Pro Gly Glu	
240 245 250 255	
ggg aga tgg caa gaa cct ttc cag tta tgt cag ttt gaa gtg act ggc	814
Gly Arg Trp Gln Glu Pro Phe Gln Leu Cys Gln Phe Glu Val Thr Gly	
260 265 270	
cag gca ttc ctt tat cat caa gtc cga tgt atg atg gct atc ctc ttt	862

Gln Ala Phe Leu Tyr His Gln Val Arg Cys Met Met Ala Ile Leu Phe	
275 280 285	
ctg att ggc caa gga atg gag aag cca gag att att gat gag ctg ctg	910
Leu Ile Gly Gln Gly Met Glu Lys Pro Glu Ile Ile Asp Glu Leu Leu	
290 295 300	
aat ata gag aaa aat ccc caa aag cct caa tat agt atg gct gta gaa	958
Asn Ile Glu Lys Asn Pro Gln Lys Pro Gln Tyr Ser Met Ala Val Glu	
305 310 315	
ttt cct cta gtc tta tat gac tgt aag ttt gaa aat gtc aag tgg atc	1006
Phe Pro Leu Val Leu Tyr Asp Cys Lys Phe Glu Asn Val Lys Trp Ile	
320 325 330 335	
tat gac cag gag gct cag gag ttc aat att acc cac cta caa caa ctg	1054
Tyr Asp Gln Glu Ala Gln Glu Phe Asn Ile Thr His Leu Gln Gln Leu	
340 345 350	
tgg gct aat cat gct gtc aaa act cac atg ttg tat agt atg cta caa	1102
Trp Ala Asn His Ala Val Lys Thr His Met Leu Tyr Ser Met Leu Gln	
355 360 365	
gga ctg gac act gtt cca gta ccc tgt gga ata gga cca aag atg gat	1150
Gly Leu Asp Thr Val Pro Val Pro Cys Gly Ile Gly Pro Lys Met Asp	
370 375 380	
gga atg aca gaa tgg gga aat gtt aag ccc tct gtc ata aag cag acc	1198
Gly Met Thr Glu Trp Gly Asn Val Lys Pro Ser Val Ile Lys Gln Thr	
385 390 395	
agt gcc ttt gta gaa gga gtg aag atg cgc aca tat aag ccc ctc atg	1246
Ser Ala Phe Val Glu Gly Val Lys Met Arg Thr Tyr Lys Pro Leu Met	
400 405 410 415	
gac cgt cct aaa tgc caa gga ctg gaa tcc cgg atc cag cat ttt gta	1294
Asp Arg Pro Lys Cys Gln Gly Leu Glu Ser Arg Ile Gln His Phe Val	
420 425 430	
cgt agg gga cga att gag cac cca cat tta ttc cat gag gaa gaa aca	1342
Arg Arg Gly Arg Ile Glu His Pro His Leu Phe His Glu Glu Glu Thr	
435 440 445	
aaa gcc aaa agg gac tgt aat gac aca cta gag gaa gag aat act aat	1390
Lys Ala Lys Arg Asp Cys Asn Asp Thr Leu Glu Glu Glu Asn Thr Asn	
450 455 460	
ttg gag aca cca acg aag agg gtc tgt gtt gac aca gaa att aaa agt	1438
Leu Glu Thr Pro Thr Lys Arg Val Cys Val Asp Thr Glu Ile Lys Ser	
465 470 475	
atc att taaccataga caatttgcca ggatctagga accacctaata ggtaggtgga	1494
Ile Ile	
480	
cagaaaagga aaaa	1508

<210>228

<211>481

<212>PRT

<213> Homo sapiens

<400>228

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Met Ala Tyr Asn Asp Thr Asp Arg Asn Gln Thr Glu Lys Leu Leu Lys
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Ala Lys Asn Lys Glu Asp Ser Asn Ile Arg Glu Asn Ser Ala Gly Ala
          35                      40                      45

Gly Lys Thr Lys Arg Ala Phe Asp Phe Ser Ala His Gly Arg Arg His
          50                      55                      60

Val Ala Leu Arg Ile Ala Tyr Met Gly Trp Gly Tyr Gln Gly Phe Ala
          65                      70                      75                      80

Ser Gln Glu Asn Thr Asn Asn Thr Ile Glu Glu Lys Leu Phe Glu Ala
          85                      90                      95

Leu Thr Lys Thr Arg Leu Val Glu Ser Arg Gln Thr Ser Asn Tyr His
          100                      105                      110

Arg Cys Gly Arg Thr Asp Lys Gly Val Ser Ala Phe Gly Gln Val Ile
          115                      120                      125

Ser Leu Asp Leu Arg Ser Gln Phe Pro Arg Gly Arg Asp Ser Glu Asp
          130                      135                      140

Phe Asn Val Lys Glu Glu Ala Asn Ala Ala Ala Glu Glu Ile Arg Tyr
          145                      150                      155                      160

Thr His Ile Leu Asn Arg Val Leu Pro Pro Asp Ile Arg Ile Leu Ala
          165                      170                      175

Trp Ala Pro Val Glu Pro Ser Phe Ser Ala Arg Phe Ser Cys Leu Glu
          180                      185                      190

Arg Thr Tyr Arg Tyr Phe Phe Pro Arg Ala Asp Leu Asp Ile Val Thr
          195                      200                      205

Met Asp Tyr Ala Ala Gln Lys Tyr Val Gly Thr His Asp Phe Arg Asn
          210                      215                      220

Leu Cys Lys Met Asp Val Ala Asn Gly Val Ile Asn Phe Gln Arg Thr
          225                      230                      235                      240

Ile Leu Ser Ala Gln Val Gln Leu Val Gly Gln Ser Pro Gly Glu Gly
          245                      250                      255

Arg Trp Gln Glu Pro Phe Gln Leu Cys Gln Phe Glu Val Thr Gly Gln
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260	265	270
Ala Phe Leu Tyr His Gln Val Arg Cys Met Met Ala Ile Leu Phe Leu		
275	280	285
Ile Gly Gln Gly Met Glu Lys Pro Glu Ile Ile Asp Glu Leu Leu Asn		
290	295	300
Ile Glu Lys Asn Pro Gln Lys Pro Gln Tyr Ser Met Ala Val Glu Phe		
305	310	315
Pro Leu Val Leu Tyr Asp Cys Lys Phe Glu Asn Val Lys Trp Ile Tyr		
325	330	335
Asp Gln Glu Ala Gln Glu Phe Asn Ile Thr His Leu Gln Gln Leu Trp		
340	345	350
Ala Asn His Ala Val Lys Thr His Met Leu Tyr Ser Met Leu Gln Gly		
355	360	365
Leu Asp Thr Val Pro Val Pro Cys Gly Ile Gly Pro Lys Met Asp Gly		
370	375	380
Met Thr Glu Trp Gly Asn Val Lys Pro Ser Val Ile Lys Gln Thr Ser		
385	390	395
Ala Phe Val Glu Gly Val Lys Met Arg Thr Tyr Lys Pro Leu Met Asp		
405	410	415
Arg Pro Lys Cys Gln Gly Leu Glu Ser Arg Ile Gln His Phe Val Arg		
420	425	430
Arg Gly Arg Ile Glu His Pro His Leu Phe His Glu Glu Glu Thr Lys		
435	440	445
Ala Lys Arg Asp Cys Asn Asp Thr Leu Glu Glu Glu Asn Thr Asn Leu		
450	455	460
Glu Thr Pro Thr Lys Arg Val Cys Val Asp Thr Glu Ile Lys Ser Ile		
465	470	475
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Ile

<210>229

<211>3080

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(15)..(3054)

<400>229

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Met Glu Asp Glu Glu Gly Pro Glu Tyr Gly Lys Pro	
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gac ttt gtg ctt ttg gac caa gtg acc atg gag gac ttc atg agg aac	98
Asp Phe Val Leu Leu Asp Gln Val Thr Met Glu Asp Phe Met Arg Asn	
15 20 25	
ctg cag ctc agg ttc gag aag ggc cgc atc tac acc tac atc ggt gag	146
Leu Gln Leu Arg Phe Glu Lys Gly Arg Ile Tyr Thr Tyr Ile Gly Glu	
30 35 40	
gtg ctg gtg tcc gtg aac ccc tac cag gag ctg ccc ctg tat ggg cct	194
Val Leu Val Ser Val Asn Pro Tyr Gln Glu Leu Pro Leu Tyr Gly Pro	
45 50 55 60	
gag gcc atc gcc agg tac cag ggc cgt gag ctc tat gag cgg cca ccc	242
Glu Ala Ile Ala Arg Tyr Gln Gly Arg Glu Leu Tyr Glu Arg Pro Pro	
65 70 75	
cat ctc tat gct gtg gcc aac gcc gcc tac aag gca atg aag cac cgg	290
His Leu Tyr Ala Val Ala Asn Ala Ala Tyr Lys Ala Met Lys His Arg	
80 85 90	
tcc agg gac acc tgc atc gtc atc tca ggg gag agt ggg gca ggg aag	338
Ser Arg Asp Thr Cys Ile Val Ile Ser Gly Glu Ser Gly Ala Gly Lys	
95 100 105	
aca gaa gcc agt aag cac atc atg cag tac atc gct gct gtc acc aat	386
Thr Glu Ala Ser Lys His Ile Met Gln Tyr Ile Ala Ala Val Thr Asn	
110 115 120	
cca agc cag agg gct gag gtg gag agg gtc aag gac gtg ctg ctc aag	434
Pro Ser Gln Arg Ala Glu Val Glu Arg Val Lys Asp Val Leu Leu Lys	
125 130 135 140	
tcc acc tgt gtg ctg gag gcc ttt ggc aat gcc cgc acc aac cgc aat	482
Ser Thr Cys Val Leu Glu Ala Phe Gly Asn Ala Arg Thr Asn Arg Asn	
145 150 155	
cac aac tcc agc cgc ttt ggc aag tac atg gac atc aac ttt gac ttc	530
His Asn Ser Ser Arg Phe Gly Lys Tyr Met Asp Ile Asn Phe Asp Phe	
160 165 170	
aag ggg gac ccg atc gga gga cac atc cac agc tac cta ctg gag aag	578
Lys Gly Asp Pro Ile Gly Gly His Ile His Ser Tyr Leu Leu Glu Lys	
175 180 185	
tct cgg gtc ctc aag cag cac gtg ggt gaa aga aac ttc cac gcc ttc	626
Ser Arg Val Leu Lys Gln His Val Gly Glu Arg Asn Phe His Ala Phe	
190 195 200	
tac caa ttg ctg aga ggc agt gag gac aag cag ctg cat gaa ctg cac	674
Tyr Gln Leu Leu Arg Gly Ser Glu Asp Lys Gln Leu His Glu Leu His	
205 210 215 220	
ttg gag aga aac cct gct gta tac aat ttc aca cac cag gga gca gga	722
Leu Glu Arg Asn Pro Ala Val Tyr Asn Phe Thr His Gln Gly Ala Gly	
225 230 235	
ctc aac atg act gtg agt gat gag cag agc cac cag gca gtg acc gag	770

Leu Asn Met Thr Val Ser Asp Glu Gln Ser His Gln Ala Val Thr Glu	
240 245 250	
gcc atg agg gtc atc ggc ttc agt cct gaa gag gtg gag tct gtg cat	818
Ala Met Arg Val Ile Gly Phe Ser Pro Glu Glu Val Glu Ser Val His	
255 260 265	
cgc atc ctg gct gcc ata ttg cac ctg gga aac atc gag ttt gtg gag	866
Arg Ile Leu Ala Ala Ile Leu His Leu Gly Asn Ile Glu Phe Val Glu	
270 275 280	
acg gag gag ggt ggg ctg cag aag gag ggc ctg gca gtg gcc gag gag	914
Thr Glu Glu Gly Gly Leu Gln Lys Glu Gly Leu Ala Val Ala Glu Glu	
285 290 295 300	
gca ctg gtg gac cat gtg gct gag ctg acg gcc aca ccc cgg gac ctc	962
Ala Leu Val Asp His Val Ala Glu Leu Thr Ala Thr Pro Arg Asp Leu	
305 310 315	
gtg ctc cgc tcc ctg ctg gct cgc aca gtt gcc tcg gga ggc agg gaa	1010
Val Leu Arg Ser Leu Leu Ala Arg Thr Val Ala Ser Gly Gly Arg Glu	
320 325 330	
ctc ata gag aag ggc cac act gca gct gag gcc agc tat gcc cgg gat	1058
Leu Ile Glu Lys Gly His Thr Ala Ala Glu Ala Ser Tyr Ala Arg Asp	
335 340 345	
gcc tgt gcc aag gca gtg tac cag cgg ctg ttt gag tgg gtg gtg aac	1106
Ala Cys Ala Lys Ala Val Tyr Gln Arg Leu Phe Glu Trp Val Val Asn	
350 355 360	
agg atc aac agt gtc atg gaa ccc cgg ggc cgg gat cct cgg cgt gat	1154
Arg Ile Asn Ser Val Met Glu Pro Arg Gly Arg Asp Pro Arg Arg Asp	
365 370 375 380	
ggc aag gac aca gtc att ggc gtg ctg gac atc tat ggc ttc gag gtg	1202
Gly Lys Asp Thr Val Ile Gly Val Leu Asp Ile Tyr Gly Phe Glu Val	
385 390 395	
ttt ccc gtc aac agt ttc gag cag ttc tgc atc aac tac tgc aac gag	1250
Phe Pro Val Asn Ser Phe Glu Gln Phe Cys Ile Asn Tyr Cys Asn Glu	
400 405 410	
aag ctg cag cag cta ttc atc cag ctc atc ctg aag cag gaa cag gaa	1298
Lys Leu Gln Gln Leu Phe Ile Gln Leu Ile Leu Lys Gln Glu Gln Glu	
415 420 425	
gag tac gag cgc gag ggc atc acc tgg cag agc gtt gag tat ttc aac	1346
Glu Tyr Glu Arg Glu Gly Ile Thr Trp Gln Ser Val Glu Tyr Phe Asn	
430 435 440	
aac gcc acc att gtg gat ctg gtg gag cgg ccc cac cgt ggc atc ctg	1394
Asn Ala Thr Ile Val Asp Leu Val Glu Arg Pro His Arg Gly Ile Leu	
445 450 455 460	
gcc gtg ctg gac gag gcc tgc agc tct gct ggc acc atc act gac cga	1442
Ala Val Leu Asp Glu Ala Cys Ser Ser Ala Gly Thr Ile Thr Asp Arg	



465										470					475					
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Ile	Phe	Leu	Gln	Thr	Leu	Asp	Met	His	His	Arg	His	His	Leu	His	Tyr					
			480					485					490							
acc	agc	cgc	cag	ctc	tgc	ccc	aca	gac	aag	acc	atg	gag	ttt	ggc	cga	1538				
Thr	Ser	Arg	Gln	Leu	Cys	Pro	Thr	Asp	Lys	Thr	Met	Glu	Phe	Gly	Arg					
			495				500					505								
gac	ttc	cgg	atc	aag	cac	tat	gca	ggg	gac	gtc	acg	tac	tcc	gtg	gaa	1586				
Asp	Phe	Arg	Ile	Lys	His	Tyr	Ala	Gly	Asp	Val	Thr	Tyr	Ser	Val	Glu					
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ggc	ttc	atc	gac	aag	aac	aga	gat	ttc	ctc	ttc	cag	gac	ttc	aag	cgg	1634				
Gly	Phe	Ile	Asp	Lys	Asn	Arg	Asp	Phe	Leu	Phe	Gln	Asp	Phe	Lys	Arg					
	525				530					535					540					
ctg	ctg	tac	aac	agc	acg	gac	ccc	act	cta	cgg	gcc	atg	tgg	ccg	gac	1682				
Leu	Leu	Tyr	Asn	Ser	Thr	Asp	Pro	Thr	Leu	Arg	Ala	Met	Trp	Pro	Asp					
			545						550					555						
ggg	cag	cag	gac	atc	aca	gag	gtg	acc	aag	cgc	ccc	ctg	acg	gct	ggc	1730				
Gly	Gln	Gln	Asp	Ile	Thr	Glu	Val	Thr	Lys	Arg	Pro	Leu	Thr	Ala	Gly					
			560				565						570							
aca	ctc	ttc	aag	aac	tcc	atg	gtg	gcc	ctg	gtg	gag	aac	ctt	gcc	tcc	1778				
Thr	Leu	Phe	Lys	Asn	Ser	Met	Val	Ala	Leu	Val	Glu	Asn	Leu	Ala	Ser					
			575				580					585								
aag	gag	ccc	ttc	tac	gtc	cgc	tgc	atc	aag	ccc	aat	gag	gac	aag	gta	1826				
Lys	Glu	Pro	Phe	Tyr	Val	Arg	Cys	Ile	Lys	Pro	Asn	Glu	Asp	Lys	Val					
	590					595					600									
gct	ggg	aag	ctg	gat	gag	aac	cac	tgt	cgc	cac	cag	gtc	gca	tac	ctg	1874				
Ala	Gly	Lys	Leu	Asp	Glu	Asn	His	Cys	Arg	His	Gln	Val	Ala	Tyr	Leu					
	605				610					615					620					
ggg	ctg	ctg	gag	aat	gtg	agg	gtc	cgc	agg	gct	ggc	ttc	gct	tcc	cgc	1922				
Gly	Leu	Leu	Glu	Asn	Val	Arg	Val	Arg	Arg	Ala	Gly	Phe	Ala	Ser	Arg					
				625				630						635						
cag	ccc	tac	tct	cga	ttc	ctg	ctc	agg	tac	aag	atg	acc	tgt	gaa	tac	1970				
Gln	Pro	Tyr	Ser	Arg	Phe	Leu	Leu	Arg	Tyr	Lys	Met	Thr	Cys	Glu	Tyr					
			640					645					650							
aca	tgg	ccc	aac	cac	ctg	ctg	ggc	tcc	gac	aag	gca	gcc	gtg	agc	gct	2018				
Thr	Trp	Pro	Asn	His	Leu	Leu	Gly	Ser	Asp	Lys	Ala	Ala	Val	Ser	Ala					
			655				660					665								
ctc	ctg	gag	cag	cac	ggg	ctg	cag	ggg	gac	gtg	gcc	ttt	ggc	cac	agc	2066				
Leu	Leu	Glu	Gln	His	Gly	Leu	Gln	Gly	Asp	Val	Ala	Phe	Gly	His	Ser					
			670				675				680									
aag	ctg	ttc	atc	cgc	tca	ccc	cgg	aca	ctg	gtc	aca	ctg	gag	cag	agc	2114				
Lys	Leu	Phe	Ile	Arg	Ser	Pro	Arg	Thr	Leu	Val	Thr	Leu	Glu	Gln	Ser					
	685				690					695					700					

cga gcc cgc ctc atc ccc atc att gtg ctg cta ttg cag aag gca tgg	2162
Arg Ala Arg Leu Ile Pro Ile Ile Val Leu Leu Leu Gln Lys Ala Trp	
705 710 715	
cgg ggc acc ttg gcg agg tgg cgc tgc cgg agg ctg agg gct atc tac	2210
Arg Gly Thr Leu Ala Arg Trp Arg Cys Arg Arg Leu Arg Ala Ile Tyr	
720 725 730	
acc atc atg cgc tgg ttc cgg aga cac aag gtg cgg gct cac ctg gct	2258
Thr Ile Met Arg Trp Phe Arg Arg His Lys Val Arg Ala His Leu Ala	
735 740 745	
gag ctg cag cgg cga ttc cag gct gca agg cag ccg cca ctc tac ggg	2306
Glu Leu Gln Arg Arg Phe Gln Ala Ala Arg Gln Pro Pro Leu Tyr Gly	
750 755 760	
cgt gac ctt gtg tgg ccg ctg ccc cct gct gtg ctg cag ccc ttc cag	2354
Arg Asp Leu Val Trp Pro Leu Pro Pro Ala Val Leu Gln Pro Phe Gln	
765 770 775 780	
gac acc tgc cac gca ctc ttc tgc agg tgg cgg gcc cgg cag ctg gtg	2402
Asp Thr Cys His Ala Leu Phe Cys Arg Trp Arg Ala Arg Gln Leu Val	
785 790 795	
aag aac atc ccc cct tca gac atg ccc cag atc aag gcc aag gtg gcc	2450
Lys Asn Ile Pro Pro Ser Asp Met Pro Gln Ile Lys Ala Lys Val Ala	
800 805 810	
gcc atg ggg gcc ctg caa ggg ctt cgt cag gac tgg ggc tgc cga cgg	2498
Ala Met Gly Ala Leu Gln Gly Leu Arg Gln Asp Trp Gly Cys Arg Arg	
815 820 825	
gcc tgg gcc cga gac tac ctg tcc tct gcc act gac aat ccc aca gca	2546
Ala Trp Ala Arg Asp Tyr Leu Ser Ser Ala Thr Asp Asn Pro Thr Ala	
830 835 840	
tca agc ctg ttt gct cag cga cta aag aca ctt cag gac aaa gat ggc	2594
Ser Ser Leu Phe Ala Gln Arg Leu Lys Thr Leu Gln Asp Lys Asp Gly	
845 850 855 860	
ttc ggg gct gtg ctc ttt tca agc cat gtc cgc aag gtg aac cgc ttc	2642
Phe Gly Ala Val Leu Phe Ser Ser His Val Arg Lys Val Asn Arg Phe	
865 870 875	
cac aag atc cgg aac cgg gcc ctc ctg ctc aca gac cag cac ctc tac	2690
His Lys Ile Arg Asn Arg Ala Leu Leu Leu Thr Asp Gln His Leu Tyr	
880 885 890	
aag ctg gac cct gac cgg cag tac cgg gtg atg cgg gcc gtg ccc ctt	2738
Lys Leu Asp Pro Asp Arg Gln Tyr Arg Val Met Arg Ala Val Pro Leu	
895 900 905	
gag gcg gtg acg ggg ctg agc gtg acc agc gga gga gac cag ctg gtg	2786
Glu Ala Val Thr Gly Leu Ser Val Thr Ser Gly Gly Asp Gln Leu Val	
910 915 920	

gtg ctg cac gcc cgc ggc cag gac gac ctc gtg gtg tgc ctg cac cgc 2834  
 Val Leu His Ala Arg Gly Gln Asp Asp Leu Val Val Cys Leu His Arg  
 925 930 935 940  
 tcc cgg ccg cca ttg gac aac cgc gtt ggg gag ctg gtg ggc gtg ctg 2882  
 Ser Arg Pro Pro Leu Asp Asn Arg Val Gly Glu Leu Val Gly Val Leu  
 945 950 955  
 gcc gca cac tgc cgc agg gag ggc cgc acc ctg gag gtt cgc gtc tcc 2930  
 Ala Ala His Cys Arg Arg Glu Gly Arg Thr Leu Glu Val Arg Val Ser  
 960 965 970  
 gac tgc atc cca cta agc cat cgc ggg gtc cgg cgc ctc atc tcc gtg 2978  
 Asp Cys Ile Pro Leu Ser His Arg Gly Val Arg Arg Leu Ile Ser Val  
 975 980 985  
 gag ccc agg ccg gag cag cca gag ccc gat ttc cgc tgc gct cgc ggc 3026  
 Glu Pro Arg Pro Glu Gln Pro Glu Pro Asp Phe Arg Cys Ala Arg Gly  
 990 995 000  
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 Ser Phe Thr Leu Leu Trp Pro Ser Arg  
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 accccga 3080

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 <211>1013  
 <212>PRT  
 <213> Homo sapiens

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 Phe Glu Lys Gly Arg Ile Tyr Thr Tyr Ile Gly Glu Val Leu Val Ser  
 35 40 45  
 Val Asn Pro Tyr Gln Glu Leu Pro Leu Tyr Gly Pro Glu Ala Ile Ala  
 50 55 60  
 Arg Tyr Gln Gly Arg Glu Leu Tyr Glu Arg Pro Pro His Leu Tyr Ala  
 65 70 75 80  
 Val Ala Asn Ala Ala Tyr Lys Ala Met Lys His Arg Ser Arg Asp Thr  
 85 90 95  
 Cys Ile Val Ile Ser Gly Glu Ser Gly Ala Gly Lys Thr Glu Ala Ser  
 100 105 110  
 Lys His Ile Met Gln Tyr Ile Ala Ala Val Thr Asn Pro Ser Gln Arg  
 115 120 125

Ala Glu Val Glu Arg Val Lys Asp Val Leu Leu Lys Ser Thr Cys Val  
 130 135 140  
 Leu Glu Ala Phe Gly Asn Ala Arg Thr Asn Arg Asn His Asn Ser Ser  
 145 150 155 160  
 Arg Phe Gly Lys Tyr Met Asp Ile Asn Phe Asp Phe Lys Gly Asp Pro  
 165 170 175  
 Ile Gly Gly His Ile His Ser Tyr Leu Leu Glu Lys Ser Arg Val Leu  
 180 185 190  
 Lys Gln His Val Gly Glu Arg Asn Phe His Ala Phe Tyr Gln Leu Leu  
 195 200 205  
 Arg Gly Ser Glu Asp Lys Gln Leu His Glu Leu His Leu Glu Arg Asn  
 210 215 220  
 Pro Ala Val Tyr Asn Phe Thr His Gln Gly Ala Gly Leu Asn Met Thr  
 225 230 235 240  
 Val Ser Asp Glu Gln Ser His Gln Ala Val Thr Glu Ala Met Arg Val  
 245 250 255  
 Ile Gly Phe Ser Pro Glu Glu Val Glu Ser Val His Arg Ile Leu Ala  
 260 265 270  
 Ala Ile Leu His Leu Gly Asn Ile Glu Phe Val Glu Thr Glu Glu Gly  
 275 280 285  
 Gly Leu Gln Lys Glu Gly Leu Ala Val Ala Glu Glu Ala Leu Val Asp  
 290 295 300  
 His Val Ala Glu Leu Thr Ala Thr Pro Arg Asp Leu Val Leu Arg Ser  
 305 310 315 320  
 Leu Leu Ala Arg Thr Val Ala Ser Gly Gly Arg Glu Leu Ile Glu Lys  
 325 330 335  
 Gly His Thr Ala Ala Glu Ala Ser Tyr Ala Arg Asp Ala Cys Ala Lys  
 340 345 350  
 Ala Val Tyr Gln Arg Leu Phe Glu Trp Val Val Asn Arg Ile Asn Ser  
 355 360 365  
 Val Met Glu Pro Arg Gly Arg Asp Pro Arg Arg Asp Gly Lys Asp Thr  
 370 375 380  
 Val Ile Gly Val Leu Asp Ile Tyr Gly Phe Glu Val Phe Pro Val Asn  
 385 390 395 400  
 Ser Phe Glu Gln Phe Cys Ile Asn Tyr Cys Asn Glu Lys Leu Gln Gln  
 405 410 415  
 Leu Phe Ile Gln Leu Ile Leu Lys Gln Glu Gln Glu Glu Tyr Glu Arg  
 420 425 430

Glu Gly Ile Thr Trp Gln Ser Val Glu Tyr Phe Asn Asn Ala Thr Ile  
 435 440 445  
 Val Asp Leu Val Glu Arg Pro His Arg Gly Ile Leu Ala Val Leu Asp  
 450 455 460  
 Glu Ala Cys Ser Ser Ala Gly Thr Ile Thr Asp Arg Ile Phe Leu Gln  
 465 470 475 480  
 Thr Leu Asp Met His His Arg His His Leu His Tyr Thr Ser Arg Gln  
 485 490 495  
 Leu Cys Pro Thr Asp Lys Thr Met Glu Phe Gly Arg Asp Phe Arg Ile  
 500 505 510  
 Lys His Tyr Ala Gly Asp Val Thr Tyr Ser Val Glu Gly Phe Ile Asp  
 515 520 525  
 Lys Asn Arg Asp Phe Leu Phe Gln Asp Phe Lys Arg Leu Leu Tyr Asn  
 530 535 540  
 Ser Thr Asp Pro Thr Leu Arg Ala Met Trp Pro Asp Gly Gln Gln Asp  
 545 550 555 560  
 Ile Thr Glu Val Thr Lys Arg Pro Leu Thr Ala Gly Thr Leu Phe Lys  
 565 570 575  
 Asn Ser Met Val Ala Leu Val Glu Asn Leu Ala Ser Lys Glu Pro Phe  
 580 585 590  
 Tyr Val Arg Cys Ile Lys Pro Asn Glu Asp Lys Val Ala Gly Lys Leu  
 595 600 605  
 Asp Glu Asn His Cys Arg His Gln Val Ala Tyr Leu Gly Leu Leu Glu  
 610 615 620  
 Asn Val Arg Val Arg Arg Ala Gly Phe Ala Ser Arg Gln Pro Tyr Ser  
 625 630 635 640  
 Arg Phe Leu Leu Arg Tyr Lys Met Thr Cys Glu Tyr Thr Trp Pro Asn  
 645 650 655  
 His Leu Leu Gly Ser Asp Lys Ala Ala Val Ser Ala Leu Leu Glu Gln  
 660 665 670  
 His Gly Leu Gln Gly Asp Val Ala Phe Gly His Ser Lys Leu Phe Ile  
 675 680 685  
 Arg Ser Pro Arg Thr Leu Val Thr Leu Glu Gln Ser Arg Ala Arg Leu  
 690 695 700  
 Ile Pro Ile Ile Val Leu Leu Leu Gln Lys Ala Trp Arg Gly Thr Leu  
 705 710 715 720  
 Ala Arg Trp Arg Cys Arg Arg Leu Arg Ala Ile Tyr Thr Ile Met Arg  
 725 730 735

Trp Phe Arg Arg His Lys Val Arg Ala His Leu Ala Glu Leu Gln Arg  
 740 745 750  
 Arg Phe Gln Ala Ala Arg Gln Pro Pro Leu Tyr Gly Arg Asp Leu Val  
 755 760 765  
 Trp Pro Leu Pro Pro Ala Val Leu Gln Pro Phe Gln Asp Thr Cys His  
 770 775 780  
 Ala Leu Phe Cys Arg Trp Arg Ala Arg Gln Leu Val Lys Asn Ile Pro  
 785 790 795 800  
 Pro Ser Asp Met Pro Gln Ile Lys Ala Lys Val Ala Ala Met Gly Ala  
 805 810 815  
 Leu Gln Gly Leu Arg Gln Asp Trp Gly Cys Arg Arg Ala Trp Ala Arg  
 820 825 830  
 Asp Tyr Leu Ser Ser Ala Thr Asp Asn Pro Thr Ala Ser Ser Leu Phe  
 835 840 845  
 Ala Gln Arg Leu Lys Thr Leu Gln Asp Lys Asp Gly Phe Gly Ala Val  
 850 855 860  
 Leu Phe Ser Ser His Val Arg Lys Val Asn Arg Phe His Lys Ile Arg  
 865 870 875 880  
 Asn Arg Ala Leu Leu Leu Thr Asp Gln His Leu Tyr Lys Leu Asp Pro  
 885 890 895  
 Asp Arg Gln Tyr Arg Val Met Arg Ala Val Pro Leu Glu Ala Val Thr  
 900 905 910  
 Gly Leu Ser Val Thr Ser Gly Gly Asp Gln Leu Val Val Leu His Ala  
 915 920 925  
 Arg Gly Gln Asp Asp Leu Val Val Cys Leu His Arg Ser Arg Pro Pro  
 930 935 940  
 Leu Asp Asn Arg Val Gly Glu Leu Val Gly Val Leu Ala Ala His Cys  
 945 950 955 960  
 Arg Arg Glu Gly Arg Thr Leu Glu Val Arg Val Ser Asp Cys Ile Pro  
 965 970 975  
 Leu Ser His Arg Gly Val Arg Arg Leu Ile Ser Val Glu Pro Arg Pro  
 980 985 990  
 Glu Gln Pro Glu Pro Asp Phe Arg Cys Ala Arg Gly Ser Phe Thr Leu  
 995 000 005  
 Leu Trp Pro Ser Arg  
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<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(7)..(1063)

<400>231

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      Met Gly Asn Gln Lys Ser Asp Ile Tyr Ala Gln Ala Lys Gln
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gat ttc gtt cag cac tac tcc cag atc gtt agg gtg ctg act gag gat      96
Asp Phe Val Gln His Tyr Ser Gln Ile Val Arg Val Leu Thr Glu Asp
      15             20             25             30

gag atg ggg cac cca gag aca gga gat gct act gcc cgg ctc aag gag      144
Glu Met Gly His Pro Glu Thr Gly Asp Ala Thr Ala Arg Leu Lys Glu
           35             40             45

gtc ctg gag tac aat gcc att gga ggc aag tat cac cga ggt ttg atg      192
Val Leu Glu Tyr Asn Ala Ile Gly Gly Lys Tyr His Arg Gly Leu Met
           50             55             60

gtg cta gta gcg ttc cgg gag ctg gtg gag ccg agg aaa ctg gat gct      240
Val Leu Val Ala Phe Arg Glu Leu Val Glu Pro Arg Lys Leu Asp Ala
           65             70             75

gat agt ctc cag tgg gca ccg act gtg ggc tgg tat gcg caa ctg ctg      288
Asp Ser Leu Gln Trp Ala Pro Thr Val Gly Trp Tyr Ala Gln Leu Leu
           80             85             90

caa gct ttc ttc ctg gtg gca gat gac att atg gat tca tcc ctt acc      336
Gln Ala Phe Phe Leu Val Ala Asp Asp Ile Met Asp Ser Ser Leu Thr
           95             100             105             110

tgc cag gga cag atc tcc tgg tat cag aag ctg ggc atg ggt ttg gat      384
Cys Gln Gly Gln Ile Ser Trp Tyr Gln Lys Leu Gly Met Gly Leu Asp
           115             120             125

gcc atc aat gat gct atc ctt ctg gaa gca tgt atc tac tgc ctg ctg      432
Ala Ile Asn Asp Ala Ile Leu Leu Glu Ala Cys Ile Tyr Cys Leu Leu
           130             135             140

aag ctg tat tgc cgg gag cag ccc tat tac ctg aac ctg atg gag ctc      480
Lys Leu Tyr Cys Arg Glu Gln Pro Tyr Tyr Leu Asn Leu Met Glu Leu
           145             150             155

ttc cag cag aat tct tat cag act gag att ggg cag acc ctc gac ctc      528
Phe Gln Gln Asn Ser Tyr Gln Thr Glu Ile Gly Gln Thr Leu Asp Leu
           160             165             170

atc aca acc ccc cag ggc aat gtg gat ctt cgc aga tgc acc gaa aaa      576
Ile Thr Thr Pro Gln Gly Asn Val Asp Leu Arg Arg Cys Thr Glu Lys
           175             180             185             190

agg cac aaa tct gtt gtc aag tac aag aca gct ttc tac tcc ttc tac      624
Arg His Lys Ser Val Val Lys Tyr Lys Thr Ala Phe Tyr Ser Phe Tyr
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195	200	205	
ctt cct gta gct gca gcc atg tac atg tca aga atg gat gac aag aag			672
Leu Pro Val Ala Ala Ala Met Tyr Met Ser Arg Met Asp Asp Lys Lys			
210	215	220	
gag cac acc agt gcc aag aag atc ctg ctg gag att caa gag ttc ttt			720
Glu His Thr Ser Ala Lys Lys Ile Leu Leu Glu Ile Gln Glu Phe Phe			
225	230	235	
cag att cag gat gat tac ctt gac ttc tct ggg gac ccc agt gtg act			768
Gln Ile Gln Asp Asp Tyr Leu Asp Phe Ser Gly Asp Pro Ser Val Thr			
240	245	250	
ggc aga gtt ggc aat gac ttc cag gac aac aaa tgc agc tgg ctg gtg			816
Gly Arg Val Gly Asn Asp Phe Gln Asp Asn Lys Cys Ser Trp Leu Val			
255	260	265	270
gtt cag tgt ctg cta cag gcc act cca gaa cag tac cag atc ctg aag			864
Val Gln Cys Leu Leu Gln Ala Thr Pro Glu Gln Tyr Gln Ile Leu Lys			
275	280	285	
gaa aat tac agg cag aag gag gcc gag aag gtg gcc cgg gtg aag gca			912
Glu Asn Tyr Arg Gln Lys Glu Ala Glu Lys Val Ala Arg Val Lys Ala			
290	295	300	
cta tac gag gag ctg gat ctg cca gcc gtg ttc ttg cag tat gag aaa			960
Leu Tyr Glu Glu Leu Asp Leu Pro Ala Val Phe Leu Gln Tyr Glu Lys			
305	310	315	
gac agt tac agc cac gtt atg ggt ctc atc gaa cag tac gca gag ccc			1008
Asp Ser Tyr Ser His Val Met Gly Leu Ile Glu Gln Tyr Ala Glu Pro			
320	325	330	
ctg ccc cca gcc atc ttt ctg ggg ctt gtg cac aaa atc tac aag tgg			1056
Leu Pro Pro Ala Ile Phe Leu Gly Leu Val His Lys Ile Tyr Lys Trp			
335	340	345	350
aaa aag tgac			1066
Lys Lys			

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<211>352

<212>PRT

<213> Homo sapiens

<400>232

Met Gly Asn Gln Lys Ser Asp Ile Tyr Ala Gln Ala Lys Gln Asp Phe

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10

15

Val Gln His Tyr Ser Gln Ile Val Arg Val Leu Thr Glu Asp Glu Met

20

25

30

Gly His Pro Glu Thr Gly Asp Ala Thr Ala Arg Leu Lys Glu Val Leu

35

40

45



Glu Tyr Asn Ala Ile Gly Gly Lys Tyr His Arg Gly Leu Met Val Leu  
     50                    55                    60

Val Ala Phe Arg Glu Leu Val Glu Pro Arg Lys Leu Asp Ala Asp Ser  
     65                    70                    75                    80

Leu Gln Trp Ala Pro Thr Val Gly Trp Tyr Ala Gln Leu Leu Gln Ala  
                     85                    90                    95

Phe Phe Leu Val Ala Asp Asp Ile Met Asp Ser Ser Leu Thr Cys Gln  
                     100                    105                    110

Gly Gln Ile Ser Trp Tyr Gln Lys Leu Gly Met Gly Leu Asp Ala Ile  
             115                    120                    125

Asn Asp Ala Ile Leu Leu Glu Ala Cys Ile Tyr Cys Leu Leu Lys Leu  
     130                    135                    140

Tyr Cys Arg Glu Gln Pro Tyr Tyr Leu Asn Leu Met Glu Leu Phe Gln  
     145                    150                    155                    160

Gln Asn Ser Tyr Gln Thr Glu Ile Gly Gln Thr Leu Asp Leu Ile Thr  
                     165                    170                    175

Thr Pro Gln Gly Asn Val Asp Leu Arg Arg Cys Thr Glu Lys Arg His  
                     180                    185                    190

Lys Ser Val Val Lys Tyr Lys Thr Ala Phe Tyr Ser Phe Tyr Leu Pro  
     195                    200                    205

Val Ala Ala Ala Met Tyr Met Ser Arg Met Asp Asp Lys Lys Glu His  
     210                    215                    220

Thr Ser Ala Lys Lys Ile Leu Leu Glu Ile Gln Glu Phe Phe Gln Ile  
     225                    230                    235                    240

Gln Asp Asp Tyr Leu Asp Phe Ser Gly Asp Pro Ser Val Thr Gly Arg  
                     245                    250                    255

Val Gly Asn Asp Phe Gln Asp Asn Lys Cys Ser Trp Leu Val Val Gln  
                     260                    265                    270

Cys Leu Leu Gln Ala Thr Pro Glu Gln Tyr Gln Ile Leu Lys Glu Asn  
     275                    280                    285

Tyr Arg Gln Lys Glu Ala Glu Lys Val Ala Arg Val Lys Ala Leu Tyr  
     290                    295                    300

Glu Glu Leu Asp Leu Pro Ala Val Phe Leu Gln Tyr Glu Lys Asp Ser  
     305                    310                    315                    320

Tyr Ser His Val Met Gly Leu Ile Glu Gln Tyr Ala Glu Pro Leu Pro  
                     325                    330                    335

Pro Ala Ile Phe Leu Gly Leu Val His Lys Ile Tyr Lys Trp Lys Lys  
                     340                    345                    350

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 <212>DNA  
 <213> Homo sapiens

<220>  
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 <222>(56)..(359)  
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tcacc atg tct gac ctg gag gca aaa cct tca act gag cat ttg ggg      97
  Met Ser Asp Leu Glu Ala Lys Pro Ser Thr Glu His Leu Gly
                5                10

gat aag ata aaa gat gaa gat att aaa ctc agg gtt att gga cag gat      145
Asp Lys Ile Lys Asp Glu Asp Ile Lys Leu Arg Val Ile Gly Gln Asp
  15                20                25                30

agc agt gag att cat ttc aaa gtg aaa atg aca aca cct ctc aag aaa      193
Ser Ser Glu Ile His Phe Lys Val Lys Met Thr Thr Pro Leu Lys Lys
                35                40                45

ctc aag aaa tcg tac tgt cag aga cag ggc gtt cca gtg aat tcc ctc      241
Leu Lys Lys Ser Tyr Cys Gln Arg Gln Gly Val Pro Val Asn Ser Leu
                50                55                60

agg ttt ctc ttt gaa ggt cag aga att gct gat aat cat act cca gaa      289
Arg Phe Leu Phe Glu Gly Gln Arg Ile Ala Asp Asn His Thr Pro Glu
                65                70                75

gaa ctg gga atg gag gaa gaa gat gtg att gag gtt tat cag gaa caa      337
Glu Leu Gly Met Glu Glu Glu Asp Val Ile Glu Val Tyr Gln Glu Gln
                80                85                90

atc gga ggt cat tca aca gtt tagacattct tttttttttt ccttttccct      388
Ile Gly Gly His Ser Thr Val
  95                100

caatcctttt ttattttttt aaa      411
  
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 <212>PRT  
 <213> Homo sapiens

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 Ile Lys Asp Glu Asp Ile Lys Leu Arg Val Ile Gly Gln Asp Ser Ser  
           20                  25                  30

Glu Ile His Phe Lys Val Lys Met Thr Thr Pro Leu Lys Lys Leu Lys  
           35                          40                          45  
 Lys Ser Tyr Cys Gln Arg Gln Gly Val Pro Val Asn Ser Leu Arg Phe  
           50                          55                          60  
 Leu Phe Glu Gly Gln Arg Ile Ala Asp Asn His Thr Pro Glu Glu Leu  
           65                          70                          75                          80  
 Gly Met Glu Glu Glu Asp Val Ile Glu Val Tyr Gln Glu Gln Ile Gly  
                           85                          90                          95  
 Gly His Ser Thr Val  
                           100

<210>235

<211>658

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(53) .. (356)

<400>235

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cc atg tct gac ctg gag gca aaa cct tca act gag cat ttg ggg gat 97  
   Met Ser Asp Leu Glu Ala Lys Pro Ser Thr Glu His Leu Gly Asp  
                           5                          10                          15

aag ata aaa gat gaa gat att aaa ctc agg gtt att gga cag gat agc 145  
 Lys Ile Lys Asp Glu Asp Ile Lys Leu Arg Val Ile Gly Gln Asp Ser  
                           20                          25                          30

agt gag att cat ttc aaa gtg aaa atg aca aca cct ctc aag aaa ctc 193  
 Ser Glu Ile His Phe Lys Val Lys Met Thr Thr Pro Leu Lys Lys Leu  
                           35                          40                          45

aag aaa tcg tac tgt cag aga cag ggc gtt cca gtg aat tcc ctc agg 241  
 Lys Lys Ser Tyr Cys Gln Arg Gln Gly Val Pro Val Asn Ser Leu Arg  
                           50                          55                          60

ttt ctc ttt gaa ggt cag aga att gct gat aat cat act cca gaa gaa 289  
 Phe Leu Phe Glu Gly Gln Arg Ile Ala Asp Asn His Thr Pro Glu Glu  
                           65                          70                          75

ctg gga atg gag gaa gaa gat gtg att gag gtt tat cag gaa caa atc 337  
 Leu Gly Met Glu Glu Glu Asp Val Ile Glu Val Tyr Gln Glu Gln Ile  
                           80                          85                          90                          95

gga ggt cat tca aca gtt tagacaatcg gaggtcattc aacagtttag 385  
 Gly Gly His Ser Thr Val  
                           100

acaatcgag gtcattcaac agtttagaca atcggaggtc attcaacagt 435

ttagacaatc ggaggtcatt caacagttta gacaatcgga ggtcattcaa 485  
 cagtttagac aatcggaggt cattcaacag tttagacaat cggaggtcat 535  
 tcaacagttt agacaatcgg aggtcattca acagtttaga caatcggagg 585  
 tcattcaaca gtttagacaa tcggagggtca ttcaacagtt tagacaatcg 635  
 gaggtcattc aacagtttag aca 658

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 <211>101  
 <212>PRT  
 <213> Homo sapiens

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 Ile Lys Asp Glu Asp Ile Lys Leu Arg Val Ile Gly Gln Asp Ser Ser  
 20 25 30  
 Glu Ile His Phe Lys Val Lys Met Thr Thr Pro Leu Lys Lys Leu Lys  
 35 40 45  
 Lys Ser Tyr Cys Gln Arg Gln Gly Val Pro Val Asn Ser Leu Arg Phe  
 50 55 60  
 Leu Phe Glu Gly Gln Arg Ile Ala Asp Asn His Thr Pro Glu Glu Leu  
 65 70 75 80  
 Gly Met Glu Glu Glu Asp Val Ile Glu Val Tyr Gln Glu Gln Ile Gly  
 85 90 95  
 Gly His Ser Thr Val  
 100

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 <212>DNA  
 <213> Homo sapiens

<220>  
 <221> CDS

<222>(9)..(561)

<400>237

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1 5 10	
aaa tcc acc gtg ggc gcc ctg ctg gca tct gag ctg gga tgg aaa ttc	95
Lys Ser Thr Val Gly Ala Leu Leu Ala Ser Glu Leu Gly Trp Lys Phe	
15 20 25	
tat gat gct gat gat tat cac ccg gag gaa aat cga agg aag atg gga	143
Tyr Asp Ala Asp Asp Tyr His Pro Glu Glu Asn Arg Arg Lys Met Gly	
30 35 40 45	
aaa ggc ata ccg ctc aat gac cag gac cgg att cca tgg ctc tgt aac	191
Lys Gly Ile Pro Leu Asn Asp Gln Asp Arg Ile Pro Trp Leu Cys Asn	
50 55 60	
ttg cat gac att tta cta aga gat gta gcc tcg gga cag cgt gtg gtt	239
Leu His Asp Ile Leu Leu Arg Asp Val Ala Ser Gly Gln Arg Val Val	
65 70 75	
cta gcc tgt tca gcc ctg aag aaa acg tac aga gac ata tta aca caa	287
Leu Ala Cys Ser Ala Leu Lys Lys Thr Tyr Arg Asp Ile Leu Thr Gln	
80 85 90	
gga aaa gat ggt gta gct ctg aag tgt gag gag tcg gga aag gaa gca	335
Gly Lys Asp Gly Val Ala Leu Lys Cys Glu Glu Ser Gly Lys Glu Ala	
95 100 105	
aag cag gct gag atg cag ctc ctg gtg gtc cat ctg agc ggg tcg ttt	383
Lys Gln Ala Glu Met Gln Leu Leu Val Val His Leu Ser Gly Ser Phe	
110 115 120 125	
gag gtc atc tct gga cgc tta ctc aaa aga gag gga cat ttt atg ccc	431
Glu Val Ile Ser Gly Arg Leu Leu Lys Arg Glu Gly His Phe Met Pro	
130 135 140	
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Pro Glu Asn Phe Ile Gln Ile Ser Val Asp Lys Asn Val Ser Glu Ile	
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Ile Ala Thr Ile Met Glu Thr Leu Lys Met Lys	
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 Pro Leu Asn Asp Gln Asp Arg Ile Pro Trp Leu Cys Asn Leu His Asp  
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 Gly Val Ala Leu Lys Cys Glu Glu Ser Gly Lys Glu Ala Lys Gln Ala  
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 Glu Met Gln Leu Leu Val Val His Leu Ser Gly Ser Phe Glu Val Ile  
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 Ser Gly Arg Leu Leu Lys Arg Glu Gly His Phe Met Pro Pro Glu Leu  
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 Leu Gln Ser Gln Phe Glu Thr Leu Glu Pro Pro Ala Ala Pro Glu Asn  
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Ile Met Glu Thr Leu Lys Met Lys  
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Leu Asn Asp Glu Ile Gly Gln Gly Ala Phe Ser Thr Ile Tyr Lys Gly  
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Lys Arg Arg Glu Arg Val Val Asn Cys Val Gln Leu Leu Arg Ser Met  
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His His Ser Asn Val Ile Glu Phe His Asn Trp Tyr Glu Thr Asn Asn  
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cac ttg tgg atc att acg gag tac tgc acc ggc gga gac atg agc acg 295  
His Leu Trp Ile Ile Thr Glu Tyr Cys Thr Gly Gly Asp Met Ser Thr  
70 75 80 85

atc ctc cgc tcg aac att aat ctc acc act cag gcg gtc cag gcg ttc 343  
Ile Leu Arg Ser Asn Ile Asn Leu Thr Thr Gln Ala Val Gln Ala Phe  
90 95 100

ggc cgt gat gtg gcg atg ggc ctc atg tac atc cac agt aag ggt gtc 391  
Gly Arg Asp Val Ala Met Gly Leu Met Tyr Ile His Ser Lys Gly Val  
105 110 115

gtg tat aac gac ttg cag act cgc aat ctg ctg atg gac tcc gca gca 439  
Val Tyr Asn Asp Leu Gln Thr Arg Asn Leu Leu Met Asp Ser Ala Ala  
120 125 130

atg ctg cgc ttc cac gac ttt agc ttg gcc tgt ctc ttc caa gac gcg 487  
Met Leu Arg Phe His Asp Phe Ser Leu Ala Cys Leu Phe Gln Asp Ala  
135 140 145

gcg acg cgg cca ctg gtg ggg acg cca ctg tac atg gcc ccc gag ttg 535  
Ala Thr Arg Pro Leu Val Gly Thr Pro Leu Tyr Met Ala Pro Glu Leu

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Phe Met Ala Asp Arg Pro Leu Tyr Ser Met Ala Ser Asp Leu Trp Ser				
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ttc ggt tgt gtg ctg cac gag ctg gcg aca ggc aag ccg ccc ttt gcc				631
Phe Gly Cys Val Leu His Glu Leu Ala Thr Gly Lys Pro Pro Phe Ala				
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gca tcc gac ctc gag acg ctg ctg ggc gac ata ctg acg agt ccg acg				679
Ala Ser Asp Leu Glu Thr Leu Leu Gly Asp Ile Leu Thr Ser Pro Thr				
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cca gcg gtg cct ggt gcg ccg gag tcc ttt caa acg ctc ctg tgc ggc				727
Pro Ala Val Pro Gly Ala Pro Glu Ser Phe Gln Thr Leu Leu Cys Gly				
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Leu Leu Glu Lys Asp Pro Leu Lys Arg Tyr Ala Trp Val Asp Val Val				
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cgc agc gag ttc tgg gat gag ccc ttg ccg ctg ccg agc aac ggc ttt				823
Arg Ser Glu Phe Trp Asp Glu Pro Leu Pro Leu Pro Ser Asn Gly Phe				
250	255	260		
cca tct cag gtg gcg tgg gag gac tac aag cgt tcg cgt tct gga cgc				871
Pro Ser Gln Val Ala Trp Glu Asp Tyr Lys Arg Ser Arg Ser Gly Arg				
265	270	275		
ggc gcg agt cag tat aat tgg acg gac tcc gat gtg cgt gtg gca gtg				919
Gly Ala Ser Gln Tyr Asn Trp Thr Asp Ser Asp Val Arg Val Ala Val				
280	285	290		
gct cac gcc gtg ggg gca gcg aaa tca aac gct tct acg cac aac gtg				967
Ala His Ala Val Gly Ala Ala Lys Ser Asn Ala Ser Thr His Asn Val				
295	300	305		
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Glu Glu Arg Glu Arg Ala Ala Ala Thr Leu Asn Val Ala Lys Glu Leu				
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gac ttc act gca agc gcg gcg atg ttg ctg gaa cgg tta ccg gag cgg				1063
Asp Phe Thr Ala Ser Ala Ala Met Leu Leu Glu Arg Leu Pro Glu Arg				
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Thr Gln Glu Arg Ala Ala His Ala Thr Gly His Val Ala Thr Ala His				
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Gly Ser Leu Val His Gly Cys Pro Ser Thr Ala Ser Ala Ala Thr Ser				
360	365	370		
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Pro Arg Arg Ser Arg Thr Arg Arg Arg Cys Ser Arg Leu Trp Lys Arg				
375	380	385		



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Ser Lys Pro Leu Ser Arg Ala Ser Ser Arg Gly Cys Pro Ser Thr Ser	
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Leu Arg His Pro Gly Met Arg Glu Arg His Trp Thr Gly Leu Ser Gln	
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aag ctc ggg atg aag ctg gtg cct ggc gac aca ctg atg ctt ctg gag	1351
Lys Leu Gly Met Lys Leu Val Pro Gly Asp Thr Leu Met Leu Leu Glu	
425 430 435	
gac tgc gaa ccg ctg cta gcg cac cgc gac acc att atc agc tac tgc	1399
Asp Cys Glu Pro Leu Leu Ala His Arg Asp Thr Ile Ile Ser Tyr Cys	
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Glu Val Ala Ala Lys Glu Ser Gln Ile Glu Met Thr Leu Lys Asp Met	
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Arg Ala Lys Trp Glu Thr Lys Cys Phe Ile Ile Glu Ala Tyr Lys Glu	
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Thr Gly Thr Tyr Ile Leu Lys Asp Thr Ser Glu Val Val Glu Leu Leu	
490 495 500	
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Asp Glu His Leu Asn Val Val Gln Gln Leu Gln Phe Ser Pro Phe Lys	
505 510 515	
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Gly Tyr Phe Glu Glu Ser Ile Thr Asp Trp Glu Arg Ser Leu Asn Leu	
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Ile Ser Asp Ile Leu Glu Gln Trp Leu Glu Cys Gln Arg Ala Trp Arg	
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Tyr Leu Glu Pro Ile Leu Asn Ser Glu Asp Ile Ala Met Gln Leu Pro	
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Thr Asn Lys Leu Leu Asp His Leu Arg Glu Ala Asn Arg Leu Leu Glu	
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aag cgg cgc tcg cac gtc tac ggc gcc cct gcc ggt aag cac ttt ctc Lys Arg Arg Ser His Val Tyr Gly Ala Pro Ala Gly Lys His Phe Leu 680 685 690	2119
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cag ccc ccg gtg gag ctt ctg cgg cag atg ctc gcc caa ggc ggc ttc Gln Pro Pro Val Glu Leu Leu Arg Gln Met Leu Ala Gln Gly Gly Phe 710 715 720 725	2215
tac aac ttt aca ggt ggc atc aag tgg tcc tcc atc atc gac tgc tcg Tyr Asn Phe Thr Gly Gly Ile Lys Trp Ser Ser Ile Ile Asp Cys Ser 730 735 740	2263
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gac atg tcg aag cga acg atc ttg cag gcc atc ctc gtc ggc ggc ctc Asp Met Ser Lys Arg Thr Ile Leu Gln Ala Ile Leu Val Gly Gly Leu 775 780 785	2407
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Glu	Glu	Ser	Ile	Val	Arg	Leu	Trp	Met	His	Glu	Met	Gln	Arg	Val	Phe		
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tac	gat	cgc	ctc	gtc	gac	gcg	aca	gac	aag	ggc	ctg	ttc	atc	gag	tac	2695	
Tyr	Asp	Arg	Leu	Val	Asp	Ala	Thr	Asp	Lys	Gly	Leu	Phe	Ile	Glu	Tyr		
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ctc	aat	gcc	gag	ctg	ccg	tcc	atg	ggg	gtg	gac	aag	tcc	tac	aac	gag	2743	
Leu	Asn	Ala	Glu	Leu	Pro	Ser	Met	Gly	Val	Asp	Lys	Ser	Tyr	Asn	Glu		
				890				895						900			
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Val	Val	Lys	Ala	Asp	Arg	Leu	Ile	Phe	Ala	Asp	Val	Leu	Ser	Asp	Lys		
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Gly	Val	Tyr	Glu	Gln	Ile	Thr	Asp	Met	Asn	Ala	Leu	Thr	Thr	Arg	Met		
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ctc	gtg	ctc	ttc	ctc	gac	gcc	atc	gag	cat	gtc	tgc	cgt	atc	tcg	cgc	2935	
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Ser	Gly	Arg	Lys	Ser	Leu	Thr	Arg	Leu	Ala	Cys	Ser	Leu	Ile	Ala	Glu		
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 Tyr Glu Thr Asn Asn His Leu Trp Ile Ile Thr Glu Tyr Cys Thr Gly  
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 Gly Asp Met Ser Thr Ile Leu Arg Ser Asn Ile Asn Leu Thr Thr Gln  
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Cys Pro Ser Thr Ser Leu Arg His Pro Gly Met Arg Glu Arg His Trp  
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Ile Ile Ser Tyr Cys Glu Val Ala Ala Lys Glu Ser Gln Ile Glu Met  
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Val Val Glu Leu Leu Asp Glu His Leu Asn Val Val Gln Gln Leu Gln  
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Phe Ser Pro Phe Lys Gly Tyr Phe Glu Glu Ser Ile Thr Asp Trp Glu  
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Glu Lys Tyr Gly Ala Gln Pro Pro Val Glu Leu Leu Arg Gln Met Leu  
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 Ser Val Leu Gln Ser Glu Glu Ser Ile Val Arg Leu Trp Met His Glu  
 850 855 860  
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 Lys Ser Tyr Asn Glu Val Val Lys Ala Asp Arg Leu Ile Phe Ala Asp  
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 Leu Thr Thr Arg Met Asn Glu Leu Leu Glu Ala Tyr Asn Asp Glu Asn  
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 Glu Val Lys Met Asn Leu Val Leu Phe Leu Asp Ala Ile Glu His Val  
 945 950 955 960  
 Cys Arg Ile Ser Arg Val Leu Arg Leu Pro Asn Gly His Cys Leu Leu  
 965 970 975  
 Leu Gly Val Gly Gly Ser Gly Arg Lys Ser Leu Thr Arg Leu Ala Cys  
 980 985 990  
 Ser Leu Ile Ala Glu Met Glu Val Phe Thr Ile Glu Leu Ser Lys Asn  
 995 000 005



Phe Gly Val Lys Glu Trp His Glu Ser Leu Ala Lys Leu Leu Leu Glu  
010 015 020  
Cys Gly Lys Asp Glu Lys Lys Arg Thr Phe Leu Phe Ala Asp Thr Gln  
025 030 035 040  
Leu Ala His Pro Thr Phe Leu Glu Asp Val Ala Gly Leu Leu Thr Ser  
045 050 055  
Gly Asp Val Pro Asn Leu Phe Glu Asp Gln Asp Ile Glu Leu Ile Asn  
060 065 070  
Asp Lys Phe Arg Gly Val Cys Leu Ser Glu Asn Leu Pro Thr Thr Lys  
075 080 085  
Val Ser Val Tyr Ala Arg Phe Val Lys Glu Ala Arg Ala Asn Leu His  
090 095 100  
Leu Val Leu Ala Phe Ser Pro Ile Gly Glu Ala Phe Arg Ser Arg Leu  
105 110 115 120  
Arg Met Phe Pro Ser Leu Ile Ala Cys Cys Thr Ile Asp Trp Phe Ala  
125 130 135  
Glu Trp Pro Ser Glu Ala Leu Leu Ser Val Ala Ala Val Gln Leu Asn  
140 145 150  
Ala Gly Asp Val Thr Asp Val Met Gly Ala Ala Ser His Ala Asp Leu  
155 160 165  
Pro Gly Cys Phe Gln Ala Val His Arg Ala Ala Ala Glu Val Thr Glu  
170 175 180  
Arg Phe Phe Thr Glu Thr Arg Arg Arg Ser Tyr Val Thr Pro Thr Ser  
185 190 195 200  
Tyr Leu Ser Leu Leu Ser Asn Phe Lys Val Met Ala Ala Ala Lys Arg  
205 210 215  
Arg Phe Val Arg Glu Gln Arg Gly Arg Leu Glu Lys Gly Leu Glu Lys  
220 225 230  
Leu Arg His Thr Glu Val Gln Val Ala Glu Leu Glu Ala Gln Leu Lys  
235 240 245  
Ala Gln Gln Pro Val Leu Val Gln Lys Lys Ala Glu Ile Gln Ser Met  
250 255 260  
Met Glu Arg Leu Thr Val Asp Arg Lys Glu Ala Ala Val Lys Glu Ala  
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Gly Glu Asp Asp Glu  
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               Met Leu Pro Asn Thr Gly Arg Leu Ala Gly Cys
                        5                      10

aca gtt ttt atc aca ggt gca agc cgt ggc att ggc aaa gct att gca      147
Thr Val Phe Ile Thr Gly Ala Ser Arg Gly Ile Gly Lys Ala Ile Ala
                15                      20                      25

ttg aaa gca gca aag gat gga gca aat att gtt att gct gca aag acc      195
Leu Lys Ala Ala Lys Asp Gly Ala Asn Ile Val Ile Ala Ala Lys Thr
                30                      35                      40

gcc cag cca cat cca aaa ctt cta ggc aca atc tat act gct gct gaa      243
Ala Gln Pro His Pro Lys Leu Leu Gly Thr Ile Tyr Thr Ala Ala Glu
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gaa att gaa gca gtt gga gga aag gcc ttg cca tgt att gtt gat gtg      291
Glu Ile Glu Ala Val Gly Gly Lys Ala Leu Pro Cys Ile Val Asp Val
                60                      65                      70                      75

aga gat gaa cag cag atc agt gct gca gtg gag aaa gcc atc aag aaa      339
Arg Asp Glu Gln Gln Ile Ser Ala Ala Val Glu Lys Ala Ile Lys Lys
                80                      85                      90

ttt gga gga att gat att ctg gta aat aat gcc agt gcc att agt ttg      387
Phe Gly Gly Ile Asp Ile Leu Val Asn Asn Ala Ser Ala Ile Ser Leu
                95                      100                      105

acc aat aca ttg gac aca cct acc aag aga ttg gat ctg atg atg aac      435
Thr Asn Thr Leu Asp Thr Pro Thr Lys Arg Leu Asp Leu Met Met Asn
                110                      115                      120

gtg aac acc aga ggc acc tac ctt gca tct aaa gca tgt att cct tat      483
Val Asn Thr Arg Gly Thr Tyr Leu Ala Ser Lys Ala Cys Ile Pro Tyr
                125                      130                      135

ttg aaa aag agc aaa gtt gct cat atc ctc aat atc agt cca cca ctg      531
Leu Lys Lys Ser Lys Val Ala His Ile Leu Asn Ile Ser Pro Pro Leu
                140                      145                      150                      155

aac cta aat cca gtt tgg ttc aaa cag cac tgt gct tat acc att gct      579
Asn Leu Asn Pro Val Trp Phe Lys Gln His Cys Ala Tyr Thr Ile Ala
                160                      165                      170
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aag tat ggt atg tct atg tat gtg ctt gga atg gca gaa gaa ttt aaa	627
Lys Tyr Gly Met Ser Met Tyr Val Leu Gly Met Ala Glu Glu Phe Lys	
175 180 185	
ggt gaa att gca gtc aat gca tta tgg cct aaa aca gcc ata cac act	675
Gly Glu Ile Ala Val Asn Ala Leu Trp Pro Lys Thr Ala Ile His Thr	
190 195 200	
gct gct atg gat atg ctg gga gga cct ggt atc gaa agc cag tgt aga	723
Ala Ala Met Asp Met Leu Gly Gly Pro Gly Ile Glu Ser Gln Cys Arg	
205 210 215	
aaa gtt gat atc att gca gat gca gca tat tcc att ttc caa aag cca	771
Lys Val Asp Ile Ile Ala Asp Ala Ala Tyr Ser Ile Phe Gln Lys Pro	
220 225 230 235	
aaa agt ttt act ggc aac ttt gtc att gat gaa aat atc tta aaa gaa	819
Lys Ser Phe Thr Gly Asn Phe Val Ile Asp Glu Asn Ile Leu Lys Glu	
240 245 250	
gaa gga ata gaa aat ttt gac gtt tat gca att aaa cca ggt cat cct	867
Glu Gly Ile Glu Asn Phe Asp Val Tyr Ala Ile Lys Pro Gly His Pro	
255 260 265	
ttg caa cca gat ttc ttc tta gat gaa tac cca gaa gca gtt agc aag	915
Leu Gln Pro Asp Phe Phe Leu Asp Glu Tyr Pro Glu Ala Val Ser Lys	
270 275 280	
aaa gtg gaa tca act ggt gct gtt cca gaa ttc aaa gaa gag aaa ctg	963
Lys Val Glu Ser Thr Gly Ala Val Pro Glu Phe Lys Glu Glu Lys Leu	
285 290 295	
cag ctg caa cca aaa cca cgt tct gga gct gtg gaa gaa aca ttt aga	1011
Gln Leu Gln Pro Lys Pro Arg Ser Gly Ala Val Glu Glu Thr Phe Arg	
300 305 310 315	
att gtt aag gac tct ctc agt gat gat gtt gtt aaa gcc act caa gca	1059
Ile Val Lys Asp Ser Leu Ser Asp Asp Val Val Lys Ala Thr Gln Ala	
320 325 330	
atc tat ctg ttt gaa ctc tcc ggt gaa gat ggt ggc acg tgg ttt ctt	1107
Ile Tyr Leu Phe Glu Leu Ser Gly Glu Asp Gly Gly Thr Trp Phe Leu	
335 340 345	
gat ctg aaa agc aag ggt ggg aat gtc gga tat gga gag cct tct gat	1155
Asp Leu Lys Ser Lys Gly Gly Asn Val Gly Tyr Gly Glu Pro Ser Asp	
350 355 360	
cag gca gat gtg gtg atg agt atg act act gat gac ttt gta aaa atg	1203
Gln Ala Asp Val Val Met Ser Met Thr Thr Asp Asp Phe Val Lys Met	
365 370 375	
ttt tca ggt aaa cta aaa cca aca atg gca ttc atg tca ggg aaa ttg	1251
Phe Ser Gly Lys Leu Lys Pro Thr Met Ala Phe Met Ser Gly Lys Leu	
380 385 390 395	
aag att aaa ggt aac atg gcc cta gca atc aaa ttg gag aag cta atg	1299

Lys Ile Lys Gly Asn Met Ala Leu Ala Ile Lys Leu Glu Lys Leu Met  
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 aat cag atg aat gcc aga ctg tgaaggaaaa tataaaaaaa aagtcgactg 1350  
 Asn Gln Met Asn Ala Arg Leu  
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 35 40 45  
 Lys Leu Leu Gly Thr Ile Tyr Thr Ala Ala Glu Glu Ile Glu Ala Val  
 50 55 60  
 Gly Gly Lys Ala Leu Pro Cys Ile Val Asp Val Arg Asp Glu Gln Gln  
 65 70 75 80  
 Ile Ser Ala Ala Val Glu Lys Ala Ile Lys Lys Phe Gly Gly Ile Asp  
 85 90 95  
 Ile Leu Val Asn Asn Ala Ser Ala Ile Ser Leu Thr Asn Thr Leu Asp  
 100 105 110  
 Thr Pro Thr Lys Arg Leu Asp Leu Met Met Asn Val Asn Thr Arg Gly  
 115 120 125  
 Thr Tyr Leu Ala Ser Lys Ala Cys Ile Pro Tyr Leu Lys Lys Ser Lys  
 130 135 140  
 Val Ala His Ile Leu Asn Ile Ser Pro Pro Leu Asn Leu Asn Pro Val  
 145 150 155 160  
 Trp Phe Lys Gln His Cys Ala Tyr Thr Ile Ala Lys Tyr Gly Met Ser  
 165 170 175  
 Met Tyr Val Leu Gly Met Ala Glu Glu Phe Lys Gly Glu Ile Ala Val  
 180 185 190

Asn Ala Leu Trp Pro Lys Thr Ala Ile His Thr Ala Ala Met Asp Met  
 195 200 205  
 Leu Gly Gly Pro Gly Ile Glu Ser Gln Cys Arg Lys Val Asp Ile Ile  
 210 215 220  
 Ala Asp Ala Ala Tyr Ser Ile Phe Gln Lys Pro Lys Ser Phe Thr Gly  
 225 230 235 240  
 Asn Phe Val Ile Asp Glu Asn Ile Leu Lys Glu Glu Gly Ile Glu Asn  
 245 250 255  
 Phe Asp Val Tyr Ala Ile Lys Pro Gly His Pro Leu Gln Pro Asp Phe  
 260 265 270  
 Phe Leu Asp Glu Tyr Pro Glu Ala Val Ser Lys Lys Val Glu Ser Thr  
 275 280 285  
 Gly Ala Val Pro Glu Phe Lys Glu Glu Lys Leu Gln Leu Gln Pro Lys  
 290 295 300  
 Pro Arg Ser Gly Ala Val Glu Glu Thr Phe Arg Ile Val Lys Asp Ser  
 305 310 315 320  
 Leu Ser Asp Asp Val Val Lys Ala Thr Gln Ala Ile Tyr Leu Phe Glu  
 325 330 335  
 Leu Ser Gly Glu Asp Gly Gly Thr Trp Phe Leu Asp Leu Lys Ser Lys  
 340 345 350  
 Gly Gly Asn Val Gly Tyr Gly Glu Pro Ser Asp Gln Ala Asp Val Val  
 355 360 365  
 Met Ser Met Thr Thr Asp Asp Phe Val Lys Met Phe Ser Gly Lys Leu  
 370 375 380  
 Lys Pro Thr Met Ala Phe Met Ser Gly Lys Leu Lys Ile Lys Gly Asn  
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ctt ctg ttc aaa tat gac tcc cag aag gag gca gag ctc cgc agc tgg	96
Leu Leu Phe Lys Tyr Asp Ser Gln Lys Glu Ala Glu Leu Arg Ser Trp	
20 25 30	
atc aag gga ttc act ggc ctc tcc atc cgc ccc gac ttc cag aag ggc	144
Ile Lys Gly Phe Thr Gly Leu Ser Ile Arg Pro Asp Phe Gln Lys Gly	
35 40 45	
ctg aag gac ggg att att tta tgc aca ctc gtg aac aaa ctg cag ccg	192
Leu Lys Asp Gly Ile Ile Leu Cys Thr Leu Val Asn Lys Leu Gln Pro	
50 55 60	
ggc tca gtc ccc aag atc aac ggc ttc cgt gta gaa ctg gca cca gct	240
Gly Ser Val Pro Lys Ile Asn Gly Phe Arg Val Glu Leu Ala Pro Ala	
65 70 75 80	
aga aaa cct ctc caa cat cct caa ggc aat ggt cag cta cgg cat gat	288
Arg Lys Pro Leu Gln His Pro Gln Gly Asn Gly Gln Leu Arg His Asp	
85 90 95	
ccc gtg gac cta ttt gag gcc aac gac ctg ttt gag agt ggg aac aat	336
Pro Val Asp Leu Phe Glu Ala Asn Asp Leu Phe Glu Ser Gly Asn Asn	
100 105 110	
atg cag gtg cgg gtg tct ctt ctc gcc ctg gca ggg aag gcc aag act	384
Met Gln Val Arg Val Ser Leu Leu Ala Leu Ala Gly Lys Ala Lys Thr	
115 120 125	
aag ggg ctg cag agc ggg gtg gac atc cgt gac aag tac tca gag aag	432
Lys Gly Leu Gln Ser Gly Val Asp Ile Arg Asp Lys Tyr Ser Glu Lys	
130 135 140	
cag aac ttc aac gac acc acc atg aag gcc agg ctg tgc gtc atc cgg	480
Gln Asn Phe Asn Asp Thr Thr Met Lys Ala Arg Leu Cys Val Ile Arg	
145 150 155 160	
ctg cag att acc aac aaa tgt gcc agc cag tca ggc atg acc gca tac	528
Leu Gln Ile Thr Asn Lys Cys Ala Ser Gln Ser Gly Met Thr Ala Tyr	
165 170 175	
gtc acg agg agg cat ctc tac gac ccc aag aac cgc atc ctg ccc ccc	576
Val Thr Arg Arg His Leu Tyr Asp Pro Lys Asn Arg Ile Leu Pro Pro	
180 185 190	
atg gac aac tcg acc atc agc ctc cgg atg ggt aca aac aag tgc gcc	624
Met Asp Asn Ser Thr Ile Ser Leu Arg Met Gly Thr Asn Lys Cys Ala	
195 200 205	
agc cag gtg ggc atg acg gct ccc ggg aac cag tgg cac atc tat gac	672
Ser Gln Val Gly Met Thr Ala Pro Gly Asn Gln Trp His Ile Tyr Asp	
210 215 220	
acc aag ttg gga atc gac aag tgt gag aac tcc tcc atg tcc ctg aag	720
Thr Lys Leu Gly Ile Asp Lys Cys Glu Asn Ser Ser Met Ser Leu Lys	
225 230 235 240	

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 Met Gly Tyr Thr Gln Val Ala Asn His Ser Arg Gln Val Phe Gly Leu  
 245 250 255  
 ggc cgg caa ata tat gaa ccc aag tac cag ccg ggt ggc cca gtg gcc 816  
 Gly Arg Gln Ile Tyr Glu Pro Lys Tyr Gln Pro Gly Gly Pro Val Ala  
 260 265 270  
 cac ggg gct ccc tcc gcc ggc aac tgc cca ggg cca ggg gag gcc cct 864  
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 Ile Lys Gly Phe Thr Gly Leu Ser Ile Arg Pro Asp Phe Gln Lys Gly  
 35 40 45  
 Leu Lys Asp Gly Ile Ile Leu Cys Thr Leu Val Asn Lys Leu Gln Pro  
 50 55 60  
 Gly Ser Val Pro Lys Ile Asn Gly Phe Arg Val Glu Leu Ala Pro Ala  
 65 70 75 80  
 Arg Lys Pro Leu Gln His Pro Gln Gly Asn Gly Gln Leu Arg His Asp  
 85 90 95  
 Pro Val Asp Leu Phe Glu Ala Asn Asp Leu Phe Glu Ser Gly Asn Asn  
 100 105 110  
 Met Gln Val Arg Val Ser Leu Leu Ala Leu Ala Gly Lys Ala Lys Thr  
 115 120 125  
 Lys Gly Leu Gln Ser Gly Val Asp Ile Arg Asp Lys Tyr Ser Glu Lys  
 130 135 140  
 Gln Asn Phe Asn Asp Thr Thr Met Lys Ala Arg Leu Cys Val Ile Arg  
 145 150 155 160  
 Leu Gln Ile Thr Asn Lys Cys Ala Ser Gln Ser Gly Met Thr Ala Tyr  
 165 170 175  
 Val Thr Arg Arg His Leu Tyr Asp Pro Lys Asn Arg Ile Leu Pro Pro  
 180 185 190

Met Asp Asn Ser Thr Ile Ser Leu Arg Met Gly Thr Asn Lys Cys Ala  
195 200 205

Ser Gln Val Gly Met Thr Ala Pro Gly Asn Gln Trp His Ile Tyr Asp  
210 215 220

Thr Lys Leu Gly Ile Asp Lys Cys Glu Asn Ser Ser Met Ser Leu Lys  
225 230 235 240

Met Gly Tyr Thr Gln Val Ala Asn His Ser Arg Gln Val Phe Gly Leu  
245 250 255

Gly Arg Gln Ile Tyr Glu Pro Lys Tyr Gln Pro Gly Gly Pro Val Ala  
260 265 270

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ctt ctg ttc aaa tat gac tcc cag aag gag gca gag ctc cgc agc tgg	96
Leu Leu Phe Lys Tyr Asp Ser Gln Lys Glu Ala Glu Leu Arg Ser Trp	
20 25 30	
atc aag gga ttc act ggc ctc tcc atc cgc ccc gac ttc cag aag ggc	144
Ile Lys Gly Phe Thr Gly Leu Ser Ile Arg Pro Asp Phe Gln Lys Gly	
35 40 45	
ctg aag gac ggg att att tta tgc aca ctc gtg aac aaa ctg cag ccg	192
Leu Lys Asp Gly Ile Ile Leu Cys Thr Leu Val Asn Lys Leu Gln Pro	
50 55 60	
ggc tca gtc ccc aag atc aac ggc ttc cgt gta gaa ctg gca cca gct	240
Gly Ser Val Pro Lys Ile Asn Gly Phe Arg Val Glu Leu Ala Pro Ala	
65 70 75 80	
aga aaa cct ctc caa cat cct caa ggc aat ggt cag cta cgg cat gat	288
Arg Lys Pro Leu Gln His Pro Gln Gly Asn Gly Gln Leu Arg His Asp	
85 90 95	
ccc gtg gac cta ttt gag gcc aac gac ctg ttt gag agt ggg aac aat	336
Pro Val Asp Leu Phe Glu Ala Asn Asp Leu Phe Glu Ser Gly Asn Asn	
100 105 110	
atg cag gtg cgg gtg tct ctt ctc gcc ctg gca ggg aag gcc aag act	384



Met	Gln	Val	Arg	Val	Ser	Leu	Leu	Ala	Leu	Ala	Gly	Lys	Ala	Lys	Thr		
		115					120					125					
aag	ggg	ctg	cag	agc	ggg	gtg	gac	atc	cgt	gac	aag	tac	tca	gag	aag	432	
Lys	Gly	Leu	Gln	Ser	Gly	Val	Asp	Ile	Arg	Asp	Lys	Tyr	Ser	Glu	Lys		
		130				135					140						
cag	aac	ttc	aac	gac	acc	acc	atg	aag	gcc	agg	ctg	tgc	gtc	atc	cgg	480	
Gln	Asn	Phe	Asn	Asp	Thr	Thr	Met	Lys	Ala	Arg	Leu	Cys	Val	Ile	Arg		
		145				150				155				160			
ctg	cag	att	acc	aac	aaa	tgt	gcc	agc	cag	tca	ggc	atg	acc	gca	tac	528	
Leu	Gln	Ile	Thr	Asn	Lys	Cys	Ala	Ser	Gln	Ser	Gly	Met	Thr	Ala	Tyr		
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gtc	acg	agg	agg	cat	ctc	tac	gac	ccc	aag	aac	cgc	atc	ctg	ccc	ccc	576	
Val	Thr	Arg	Arg	His	Leu	Tyr	Asp	Pro	Lys	Asn	Arg	Ile	Leu	Pro	Pro		
				180				185					190				
atg	gac	aac	tcg	acc	atc	agc	ctc	cgg	atg	ggc	aca	aac	aag	tgc	gcc	624	
Met	Asp	Asn	Ser	Thr	Ile	Ser	Leu	Arg	Met	Gly	Thr	Asn	Lys	Cys	Ala		
		195					200					205					
agc	cag	gtg	ggc	atg	acg	gct	ccc	ggg	aac	cag	tgg	cac	atc	tat	gac	672	
Ser	Gln	Val	Gly	Met	Thr	Ala	Pro	Gly	Asn	Gln	Trp	His	Ile	Tyr	Asp		
		210				215					220						
acc	aag	ttg	gga	atc	gac	aag	tgt	gag	aac	tcc	tcc	atg	tcc	ctg	aag	720	
Thr	Lys	Leu	Gly	Ile	Asp	Lys	Cys	Glu	Asn	Ser	Ser	Met	Ser	Leu	Lys		
		225				230				235				240			
atg	ggc	tac	acg	cag	gtc	gcc	aat	cac	agc	aga	cag	gtc	ttt	ggc	cta	768	
Met	Gly	Tyr	Thr	Gln	Val	Ala	Asn	His	Ser	Arg	Gln	Val	Phe	Gly	Leu		
				245					250					255			
ggc	cgg	caa	ata	tat	gaa	ccc	aag	tac	cag	ccg	ggc	ggc	cca	gtg	gcc	816	
Gly	Arg	Gln	Ile	Tyr	Glu	Pro	Lys	Tyr	Gln	Pro	Gly	Gly	Pro	Val	Ala		
		260						265					270				
cac	ggg	gct	ccc	tcc	gcc	ggc	aac	tgc	cca	ggg	cca	ggg	gag	gcc	cct	864	
His	Gly	Ala	Pro	Ser	Ala	Gly	Asn	Cys	Pro	Gly	Pro	Gly	Glu	Ala	Pro		
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<212>PRT

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Ile Lys Gly Phe Thr Gly Leu Ser Ile Arg Pro Asp Phe Gln Lys Gly 35 40 45		
Leu Lys Asp Gly Ile Ile Leu Cys Thr Leu Val Asn Lys Leu Gln Pro 50 55 60		
Gly Ser Val Pro Lys Ile Asn Gly Phe Arg Val Glu Leu Ala Pro Ala 65 70 75 80		
Arg Lys Pro Leu Gln His Pro Gln Gly Asn Gly Gln Leu Arg His Asp 85 90 95		
Pro Val Asp Leu Phe Glu Ala Asn Asp Leu Phe Glu Ser Gly Asn Asn 100 105 110		
Met Gln Val Arg Val Ser Leu Leu Ala Leu Ala Gly Lys Ala Lys Thr 115 120 125		
Lys Gly Leu Gln Ser Gly Val Asp Ile Arg Asp Lys Tyr Ser Glu Lys 130 135 140		
Gln Asn Phe Asn Asp Thr Thr Met Lys Ala Arg Leu Cys Val Ile Arg 145 150 155 160		
Leu Gln Ile Thr Asn Lys Cys Ala Ser Gln Ser Gly Met Thr Ala Tyr 165 170 175		
Val Thr Arg Arg His Leu Tyr Asp Pro Lys Asn Arg Ile Leu Pro Pro 180 185 190		
Met Asp Asn Ser Thr Ile Ser Leu Arg Met Gly Thr Asn Lys Cys Ala 195 200 205		
Ser Gln Val Gly Met Thr Ala Pro Gly Asn Gln Trp His Ile Tyr Asp 210 215 220		
Thr Lys Leu Gly Ile Asp Lys Cys Glu Asn Ser Ser Met Ser Leu Lys 225 230 235 240		
Met Gly Tyr Thr Gln Val Ala Asn His Ser Arg Gln Val Phe Gly Leu 245 250 255		
Gly Arg Gln Ile Tyr Glu Pro Lys Tyr Gln Pro Gly Gly Pro Val Ala 260 265 270		
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<400>247

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Ala Arg Thr Leu Gly Arg Gly Val Gly Arg Leu Leu Gly Ser Leu Arg
          5                10                15

ggg ctc tcg ggg cag ccc gcg cgg ccg ccg tgc ggg gtg agc gcg ccg      151
Gly Leu Ser Gly Gln Pro Ala Arg Pro Pro Cys Gly Val Ser Ala Pro
      20                25                30

cgc agg gcg gcc tcg gga ccc tcg ggc agc gct ccc gca gtt gca gca      199
Arg Arg Ala Ala Ser Gly Pro Ser Gly Ser Ala Pro Ala Val Ala Ala
      35                40                45                50

gca gca gca cag cca ggc tcg tat ccc gcg ctg agt gca cag gca gcc      247
Ala Ala Ala Gln Pro Gly Ser Tyr Pro Ala Leu Ser Ala Gln Ala Ala
          55                60                65

cgg gag ccg gcc gcc ttc tgg ggg cct ctg gcg cgg gac act ctc gtg      295
Arg Glu Pro Ala Ala Phe Trp Gly Pro Leu Ala Arg Asp Thr Leu Val
          70                75                80

tgg gac acc ccc tac cac acc gtc tgg gac tgc gac ttc agc act ggc      343
Trp Asp Thr Pro Tyr His Thr Val Trp Asp Cys Asp Phe Ser Thr Gly
          85                90                95

aag atc ggc tgg ttc ctg gga ggc cag tta aat gtc tct gtc aac tgc      391
Lys Ile Gly Trp Phe Leu Gly Gly Gln Leu Asn Val Ser Val Asn Cys
      100                105                110

ttg gac cag cat gtt cgg aag tcc ccc gag agc gtt gct ttg atc tgg      439
Leu Asp Gln His Val Arg Lys Ser Pro Glu Ser Val Ala Leu Ile Trp
      115                120                125                130

gag cgc gat gag cct gga acg gaa gtg agg atc acc tac agg gaa cta      487
Glu Arg Asp Glu Pro Gly Thr Glu Val Arg Ile Thr Tyr Arg Glu Leu
          135                140                145

ctg gag acc acg tgc cgc ctg gcc aac acg ctg aag agg cat gga gtc      535
Leu Glu Thr Thr Cys Arg Leu Ala Asn Thr Leu Lys Arg His Gly Val
          150                155                160

cac cgt ggg gac cgt gtt gcc atc tac atg ccc gtg tcc cca ttg gct      583
His Arg Gly Asp Arg Val Ala Ile Tyr Met Pro Val Ser Pro Leu Ala
          165                170                175

gtg gca gca atg ctg gcc tgt gcc agg atc gga gct gtc cac aca gtc      631
Val Ala Ala Met Leu Ala Cys Ala Arg Ile Gly Ala Val His Thr Val
      180                185                190

atc ttt gct ggc ttc agt gca gag tcc ttg gct ggg agg atc aat gat      679
Ile Phe Ala Gly Phe Ser Ala Glu Ser Leu Ala Gly Arg Ile Asn Asp
      195                200                205                210
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gcc aag tgc aag gtg gtt atc acc ttc aac caa gga ctc cgg ggt ggg	727
Ala Lys Cys Lys Val Val Ile Thr Phe Asn Gln Gly Leu Arg Gly Gly	
215 220 225	
cgc gtg gtg gag ctg aag aaa ata gtg gat gag gct gtg aag cac tgc	775
Arg Val Val Glu Leu Lys Lys Ile Val Asp Glu Ala Val Lys His Cys	
230 235 240	
ccc acc gtg cag cat gtc ctg gtg gct cac agg aca gac aac aag gtc	823
Pro Thr Val Gln His Val Leu Val Ala His Arg Thr Asp Asn Lys Val	
245 250 255	
cac atg ggg gat ctg gac gtc ccg ctg gag cag gaa atg gcc aag gag	871
His Met Gly Asp Leu Asp Val Pro Leu Glu Gln Glu Met Ala Lys Glu	
260 265 270	
gac cct gtt tgc gcc cca gag agc atg ggc agt gag gac atg ctc ttc	919
Asp Pro Val Cys Ala Pro Glu Ser Met Gly Ser Glu Asp Met Leu Phe	
275 280 285 290	
atg ctg tac acc tca ggg agc acc gga atg ccc aag ggc atc gtc cat	967
Met Leu Tyr Thr Ser Gly Ser Thr Gly Met Pro Lys Gly Ile Val His	
295 300 305	
acc cag gca ggc tac ctg ctc tat gcc gcc ctg act cac aag ctt gtg	1015
Thr Gln Ala Gly Tyr Leu Leu Tyr Ala Ala Leu Thr His Lys Leu Val	
310 315 320	
ttt gac cac cag cca ggt gac atc ttt ggc tgt gtg gcc gac atc ggt	1063
Phe Asp His Gln Pro Gly Asp Ile Phe Gly Cys Val Ala Asp Ile Gly	
325 330 335	
tgg att aca gga cac agc tac gtg gtg tat ggg cct ctc tgc aat ggt	1111
Trp Ile Thr Gly His Ser Tyr Val Val Tyr Gly Pro Leu Cys Asn Gly	
340 345 350	
gcc acc agc gtc ctt ttt gag agc acc cca gtt tat ccc aat gct ggt	1159
Ala Thr Ser Val Leu Phe Glu Ser Thr Pro Val Tyr Pro Asn Ala Gly	
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cgg tac tgg gag aca gta gag agg ttg aag atc aat cag ttc tat ggc	1207
Arg Tyr Trp Glu Thr Val Glu Arg Leu Lys Ile Asn Gln Phe Tyr Gly	
375 380 385	
gcc cca acg gct gtc cgg ctg ttg ctg aaa tac ggt gat gcc tgg gtg	1255
Ala Pro Thr Ala Val Arg Leu Leu Leu Lys Tyr Gly Asp Ala Trp Val	
390 395 400	
aag aag tat gat cgc tcc tcc ctg cgg acc ctg ggg tca gtg gga gag	1303
Lys Lys Tyr Asp Arg Ser Ser Leu Arg Thr Leu Gly Ser Val Gly Glu	
405 410 415	
ccc atc aac tgt gag gcc tgg gag tgg ctt cac agg gtg gtg ggg gac	1351
Pro Ile Asn Cys Glu Ala Trp Glu Trp Leu His Arg Val Val Gly Asp	
420 425 430	

agc agg tgc acg ctg gtg gac acc tgg tgg cag aca gaa aca ggt ggc 1399  
 Ser Arg Cys Thr Leu Val Asp Thr Trp Trp Gln Thr Glu Thr Gly Gly  
 435 440 445 450

atc tgc atc gca cca cgg ccc tgc gaa gaa ggg gcg gaa atc ctc cct 1447  
 Ile Cys Ile Ala Pro Arg Pro Ser Glu Glu Gly Ala Glu Ile Leu Pro  
 455 460 465

gcc atg gcg atg agg ccc ttc ttt ggc atc gtc ccc gtc ctc atg gat 1495  
 Ala Met Ala Met Arg Pro Phe Phe Gly Ile Val Pro Val Leu Met Asp  
 470 475 480

gag aag ggc agc gtc gtg gag ggc agc aac gtc tcc ggg gcc ctg tgc 1543  
 Glu Lys Gly Ser Val Val Glu Gly Ser Asn Val Ser Gly Ala Leu Cys  
 485 490 495

atc tcc cag gcc tgg ccg ggc atg gcc agg acc atc tat ggc gac cac 1591  
 Ile Ser Gln Ala Trp Pro Gly Met Ala Arg Thr Ile Tyr Gly Asp His  
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cag cga ttt gtg gac gcc tac ttc aag gcc tac cca ggc tat tac ttc 1639  
 Gln Arg Phe Val Asp Ala Tyr Phe Lys Ala Tyr Pro Gly Tyr Tyr Phe  
 515 520 525 530

act gga gac ggg gct tac cga act gag ggc ggc tat tac cag atc aca 1687  
 Thr Gly Asp Gly Ala Tyr Arg Thr Glu Gly Gly Tyr Tyr Gln Ile Thr  
 535 540 545

ggg cgg atg gat gat gtc atc aac atc agt ggc cac cgg ctg ggg acc 1735  
 Gly Arg Met Asp Asp Val Ile Asn Ile Ser Gly His Arg Leu Gly Thr  
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gca gag att gag gac gcc atc gcc gac cac cct gca gta cca gaa agt 1783  
 Ala Glu Ile Glu Asp Ala Ile Ala Asp His Pro Ala Val Pro Glu Ser  
 565 570 575

gct gtc att ggc tac ccc cac gac atc aaa gga gaa gct gcc ttt gcc 1831  
 Ala Val Ile Gly Tyr Pro His Asp Ile Lys Gly Glu Ala Ala Phe Ala  
 580 585 590

ttc att gtg gtg aaa gat agt gcg ggt gac tca gat gtg gtg gtg cag 1879  
 Phe Ile Val Val Lys Asp Ser Ala Gly Asp Ser Asp Val Val Val Gln  
 595 600 605 610

gag ctc aag tcc atg gtg gcc acc aag atc gcc aaa tat gct gtg cct 1927  
 Glu Leu Lys Ser Met Val Ala Thr Lys Ile Ala Lys Tyr Ala Val Pro  
 615 620 625

gat gag atc ctg gtg gtg aaa cgt ctt cca aaa acc agg tct ggg aag 1975  
 Asp Glu Ile Leu Val Val Lys Arg Leu Pro Lys Thr Arg Ser Gly Lys  
 630 635 640

gtc atg cgg cgg ctc ctg agg aag atc atc act agt gag gcc cag gag 2023  
 Val Met Arg Arg Leu Leu Arg Lys Ile Ile Thr Ser Glu Ala Gln Glu  
 645 650 655

ctg gga gac act acc acc ttg gag gac ccc agc atc atc gca gag atc 2071

Leu Gly Asp Thr Thr Thr Leu Glu Asp Pro Ser Ile Ile Ala Glu Ile  
660 665 670

ctg agt gtc tac cag aag tgc aag gac aag cag gct gct gct aag 2116  
Leu Ser Val Tyr Gln Lys Cys Lys Asp Lys Gln Ala Ala Ala Lys  
675 680 685

tgagctggca ccttgtgggg ctcttgggat gggcgggcac ccaagccctg 2166

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Ala Pro Arg Arg Ala Ala Ser Gly Pro Ser Gly Ser Ala Pro Ala Val  
35 40 45

Ala Ala Ala Ala Ala Gln Pro Gly Ser Tyr Pro Ala Leu Ser Ala Gln  
50 55 60

Ala Ala Arg Glu Pro Ala Ala Phe Trp Gly Pro Leu Ala Arg Asp Thr  
65 70 75 80

Leu Val Trp Asp Thr Pro Tyr His Thr Val Trp Asp Cys Asp Phe Ser  
85 90 95

Thr Gly Lys Ile Gly Trp Phe Leu Gly Gly Gln Leu Asn Val Ser Val  
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Asn Cys Leu Asp Gln His Val Arg Lys Ser Pro Glu Ser Val Ala Leu  
115 120 125

Ile Trp Glu Arg Asp Glu Pro Gly Thr Glu Val Arg Ile Thr Tyr Arg  
130 135 140

Glu Leu Leu Glu Thr Thr Cys Arg Leu Ala Asn Thr Leu Lys Arg His  
145 150 155 160

Gly Val His Arg Gly Asp Arg Val Ala Ile Tyr Met Pro Val Ser Pro  
165 170 175

Leu Ala Val Ala Ala Met Leu Ala Cys Ala Arg Ile Gly Ala Val His  
180 185 190

Thr Val Ile Phe Ala Gly Phe Ser Ala Glu Ser Leu Ala Gly Arg Ile  
 195 200 205  
 Asn Asp Ala Lys Cys Lys Val Val Ile Thr Phe Asn Gln Gly Leu Arg  
 210 215 220  
 Gly Gly Arg Val Val Glu Leu Lys Lys Ile Val Asp Glu Ala Val Lys  
 225 230 235 240  
 His Cys Pro Thr Val Gln His Val Leu Val Ala His Arg Thr Asp Asn  
 245 250 255  
 Lys Val His Met Gly Asp Leu Asp Val Pro Leu Glu Gln Glu Met Ala  
 260 265 270  
 Lys Glu Asp Pro Val Cys Ala Pro Glu Ser Met Gly Ser Glu Asp Met  
 275 280 285  
 Leu Phe Met Leu Tyr Thr Ser Gly Ser Thr Gly Met Pro Lys Gly Ile  
 290 295 300  
 Val His Thr Gln Ala Gly Tyr Leu Leu Tyr Ala Ala Leu Thr His Lys  
 305 310 315 320  
 Leu Val Phe Asp His Gln Pro Gly Asp Ile Phe Gly Cys Val Ala Asp  
 325 330 335  
 Ile Gly Trp Ile Thr Gly His Ser Tyr Val Val Tyr Gly Pro Leu Cys  
 340 345 350  
 Asn Gly Ala Thr Ser Val Leu Phe Glu Ser Thr Pro Val Tyr Pro Asn  
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 Ala Gly Arg Tyr Trp Glu Thr Val Glu Arg Leu Lys Ile Asn Gln Phe  
 370 375 380  
 Tyr Gly Ala Pro Thr Ala Val Arg Leu Leu Leu Lys Tyr Gly Asp Ala  
 385 390 395 400  
 Trp Val Lys Lys Tyr Asp Arg Ser Ser Leu Arg Thr Leu Gly Ser Val  
 405 410 415  
 Gly Glu Pro Ile Asn Cys Glu Ala Trp Glu Trp Leu His Arg Val Val  
 420 425 430  
 Gly Asp Ser Arg Cys Thr Leu Val Asp Thr Trp Trp Gln Thr Glu Thr  
 435 440 445  
 Gly Gly Ile Cys Ile Ala Pro Arg Pro Ser Glu Glu Gly Ala Glu Ile  
 450 455 460  
 Leu Pro Ala Met Ala Met Arg Pro Phe Phe Gly Ile Val Pro Val Leu  
 465 470 475 480  
 Met Asp Glu Lys Gly Ser Val Val Glu Gly Ser Asn Val Ser Gly Ala  
 485 490 495

Leu Cys Ile Ser Gln Ala Trp Pro Gly Met Ala Arg Thr Ile Tyr Gly  
 500 505 510  
 Asp His Gln Arg Phe Val Asp Ala Tyr Phe Lys Ala Tyr Pro Gly Tyr  
 515 520 525  
 Tyr Phe Thr Gly Asp Gly Ala Tyr Arg Thr Glu Gly Gly Tyr Tyr Gln  
 530 535 540  
 Ile Thr Gly Arg Met Asp Asp Val Ile Asn Ile Ser Gly His Arg Leu  
 545 550 555 560  
 Gly Thr Ala Glu Ile Glu Asp Ala Ile Ala Asp His Pro Ala Val Pro  
 565 570 575  
 Glu Ser Ala Val Ile Gly Tyr Pro His Asp Ile Lys Gly Glu Ala Ala  
 580 585 590  
 Phe Ala Phe Ile Val Val Lys Asp Ser Ala Gly Asp Ser Asp Val Val  
 595 600 605  
 Val Gln Glu Leu Lys Ser Met Val Ala Thr Lys Ile Ala Lys Tyr Ala  
 610 615 620  
 Val Pro Asp Glu Ile Leu Val Val Lys Arg Leu Pro Lys Thr Arg Ser  
 625 630 635 640  
 Gly Lys Val Met Arg Arg Leu Leu Arg Lys Ile Ile Thr Ser Glu Ala  
 645 650 655  
 Gln Glu Leu Gly Asp Thr Thr Thr Leu Glu Asp Pro Ser Ile Ile Ala  
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Lys

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 Met Asp Glu Leu Gln Asp Val Gln Leu Thr 10  
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gag atc aaa cca ctt cta aat gat aag aat ggt aca aga aac ttc cag 148



Glu Ile Lys Pro Leu Leu Asn Asp Lys Asn Gly Thr Arg Asn Phe Gln  
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 gac ttt gac tgt cag gaa cat gat ata gaa aca act cat ggt gtg gtc 196  
 Asp Phe Asp Cys Gln Glu His Asp Ile Glu Thr Thr His Gly Val Val  
 30 35 40  
 cac gtc act ata aga ggc tta ccc aaa gga aac aga cca gtt ata cta 244  
 His Val Thr Ile Arg Gly Leu Pro Lys Gly Asn Arg Pro Val Ile Leu  
 45 50 55  
 aca tat cat gac att ggc ctc aac cgt aaa tcc tgt ttc aat gca ttc 292  
 Thr Tyr His Asp Ile Gly Leu Asn Arg Lys Ser Cys Phe Asn Ala Phe  
 60 65 70  
 ttt aac ttt gag gat atg caa gag atc acc cag cac ttt gct gtc tgt 340  
 Phe Asn Phe Glu Asp Met Gln Glu Ile Thr Gln His Phe Ala Val Cys  
 75 80 85 90  
 cat gtg gat gcc cca ggc cag cag gaa ggt gca ccc tct ttc cca aca 388  
 His Val Asp Ala Pro Gly Gln Gln Glu Gly Ala Pro Ser Phe Pro Thr  
 95 100 105  
 ggg tat cag tac ccc aca atg gat gag ctg gct gaa atg ctg cct cct 436  
 Gly Tyr Gln Tyr Pro Thr Met Asp Glu Leu Ala Glu Met Leu Pro Pro  
 110 115 120  
 gtt ctt acc cac cta agc ctg aaa agc atc att gga att gga gtt gga 484  
 Val Leu Thr His Leu Ser Leu Lys Ser Ile Ile Gly Ile Gly Val Gly  
 125 130 135  
 gct gga gct tac atc ctc agc aga ttt gca ctc aac cat cca gag ctt 532  
 Ala Gly Ala Tyr Ile Leu Ser Arg Phe Ala Leu Asn His Pro Glu Leu  
 140 145 150  
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 Val Glu Gly Leu Val Leu Ile Asn Val Asp Pro Cys Ala Lys Gly Trp  
 155 160 165 170  
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 175 180 185  
 gac att att ttg gct cat cac ttt ggg cag gaa gag tta cag gcc aac 676  
 Asp Ile Ile Leu Ala His His Phe Gly Gln Glu Glu Leu Gln Ala Asn  
 190 195 200  
 ctg gac ctg atc caa acc tac aga atg cat att gcc caa gac atc aac 724  
 Leu Asp Leu Ile Gln Thr Tyr Arg Met His Ile Ala Gln Asp Ile Asn  
 205 210 215  
 caa gac aac ctg cag ctc ttc ttg aat tcc tac aat ggg cgc aga gac 772  
 Gln Asp Asn Leu Gln Leu Phe Leu Asn Ser Tyr Asn Gly Arg Arg Asp  
 220 225 230  
 ctg gag atc gaa aga ccc ata ctg ggc caa aat gat aac aaa tca aaa 820  
 Leu Glu Ile Glu Arg Pro Ile Leu Gly Gln Asn Asp Asn Lys Ser Lys

235	240	245	250	
aca tta aag tgt tct act tta ctg gtg gta ggg gac aat tcg cct gca				868
Thr Leu Lys Cys Ser Thr Leu Leu Val Val Gly Asp Asn Ser Pro Ala				
255		260	265	
gtt gag gct gtg gtc gaa tgc aat tcc cgc ctg aac cct ata aat aca				916
Val Glu Ala Val Val Glu Cys Asn Ser Arg Leu Asn Pro Ile Asn Thr				
270		275	280	
act ttg cta aag atg gcg gac tgt ggg gga ctg ccc cag gta gtt cag				964
Thr Leu Leu Lys Met Ala Asp Cys Gly Gly Leu Pro Gln Val Val Gln				
285		290	295	
cct ggg aag ctc acc gag gcc ttc aag tac ttt ttg cag gga atg ggc				1012
Pro Gly Lys Leu Thr Glu Ala Phe Lys Tyr Phe Leu Gln Gly Met Gly				
300		305	310	
tac gtc ccg tct gcc agc atg act cgg ctc gcc cga tca cga acc cac				1060
Tyr Val Pro Ser Ala Ser Met Thr Arg Leu Ala Arg Ser Arg Thr His				
315		320	325	330
tca acc tcg agt agc ctc ggc tct gga gaa agt ccc ttc agc cgg tct				1108
Ser Thr Ser Ser Ser Leu Gly Ser Gly Glu Ser Pro Phe Ser Arg Ser				
335		340	345	
gtc acc agc aat cag tca gat gga act caa gaa tcc tgt gag tcc cct				1156
Val Thr Ser Asn Gln Ser Asp Gly Thr Gln Glu Ser Cys Glu Ser Pro				
350		355	360	
gat gtc ctg gac aga cac cag acc atg gag gtg tcc tgc taagcagatg				1205
Asp Val Leu Asp Arg His Gln Thr Met Glu Val Ser Cys				
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	20		25	30
His Asp Ile Glu Thr Thr His Gly Val Val His Val Thr Ile Arg Gly				
	35		40	45

Leu Pro Lys Gly Asn Arg Pro Val Ile Leu Thr Tyr His Asp Ile Gly  
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Leu Asn Arg Lys Ser Cys Phe Asn Ala Phe Phe Asn Phe Glu Asp Met  
 65 70 75 80

Gln Glu Ile Thr Gln His Phe Ala Val Cys His Val Asp Ala Pro Gly  
 85 90 95

Gln Gln Glu Gly Ala Pro Ser Phe Pro Thr Gly Tyr Gln Tyr Pro Thr  
 100 105 110

Met Asp Glu Leu Ala Glu Met Leu Pro Pro Val Leu Thr His Leu Ser  
 115 120 125

Leu Lys Ser Ile Ile Gly Ile Gly Val Gly Ala Gly Ala Tyr Ile Leu  
 130 135 140

Ser Arg Phe Ala Leu Asn His Pro Glu Leu Val Glu Gly Leu Val Leu  
 145 150 155 160

Ile Asn Val Asp Pro Cys Ala Lys Gly Trp Ile Asp Trp Ala Ala Ser  
 165 170 175

Lys Leu Ser Gly Leu Thr Thr Asn Val Val Asp Ile Ile Leu Ala His  
 180 185 190

His Phe Gly Gln Glu Glu Leu Gln Ala Asn Leu Asp Leu Ile Gln Thr  
 195 200 205

Tyr Arg Met His Ile Ala Gln Asp Ile Asn Gln Asp Asn Leu Gln Leu  
 210 215 220

Phe Leu Asn Ser Tyr Asn Gly Arg Arg Asp Leu Glu Ile Glu Arg Pro  
 225 230 235 240

Ile Leu Gly Gln Asn Asp Asn Lys Ser Lys Thr Leu Lys Cys Ser Thr  
 245 250 255

Leu Leu Val Val Gly Asp Asn Ser Pro Ala Val Glu Ala Val Val Glu  
 260 265 270

Cys Asn Ser Arg Leu Asn Pro Ile Asn Thr Thr Leu Leu Lys Met Ala  
 275 280 285

Asp Cys Gly Gly Leu Pro Gln Val Val Gln Pro Gly Lys Leu Thr Glu  
 290 295 300

Ala Phe Lys Tyr Phe Leu Gln Gly Met Gly Tyr Val Pro Ser Ala Ser  
 305 310 315 320

Met Thr Arg Leu Ala Arg Ser Arg Thr His Ser Thr Ser Ser Ser Leu  
 325 330 335

Gly Ser Gly Glu Ser Pro Phe Ser Arg Ser Val Thr Ser Asn Gln Ser  
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					1				5						10		
atc	aaa	cca	ctt	cta	aat	gat	aag	aat	ggt	aca	aga	aac	ttc	cag	gac	96	
Ile	Lys	Pro	Leu	Leu	Asn	Asp	Lys	Asn	Gly	Thr	Arg	Asn	Phe	Gln	Asp		
			15					20					25				
ttt	gac	tgt	cag	gaa	cat	gat	ata	gaa	aca	act	cat	ggt	gtg	gtc	cac	144	
Phe	Asp	Cys	Gln	Glu	His	Asp	Ile	Glu	Thr	Thr	His	Gly	Val	Val	His		
		30					35					40					
gtc	act	ata	aga	ggc	tta	ccc	aaa	gga	aac	aga	cca	g	g	g	g	192	
Val	Thr	Ile	Arg	Gly	Leu	Pro	Lys	Gly	Asn	Arg	Pro	Val	Ile	Leu	Thr		
	45					50					55						
tat	cat	gac	att	ggc	ctc	aac	cat	aaa	tcc	tgt	ttc	aat	gca	ttc	ttt	240	
Tyr	His	Asp	Ile	Gly	Leu	Asn	His	Lys	Ser	Cys	Phe	Asn	Ala	Phe	Phe		
	60				65				70					75			
aac	ttt	gag	gat	atg	caa	gag	atc	acc	cag	cac	ttt	gct	gtc	tgt	cat	288	
Asn	Phe	Glu	Asp	Met	Gln	Glu	Ile	Thr	Gln	His	Phe	Ala	Val	Cys	His		
				80					85					90			
gtg	gat	gcc	cca	ggc	cag	cag	gaa	ggt	gca	ccc	tct	ttc	cca	aca	ggg	336	
Val	Asp	Ala	Pro	Gly	Gln	Gln	Glu	Gly	Ala	Pro	Ser	Phe	Pro	Thr	Gly		
			95					100					105				
tat	cag	tac	ccc	aca	atg	gat	gag	ctg	gct	gaa	gtg	ctg	cct	cct	g	384	
Tyr	Gln	Tyr	Pro	Thr	Met	Asp	Glu	Leu	Ala	Glu	Val	Leu	Pro	Pro	Val		
		110					115					120					
ctt	acc	cac	cta	agc	ctg	aaa	agc	atc	att	gga	att	gga	gtt	gga	gct	432	
Leu	Thr	His	Leu	Ser	Leu	Lys	Ser	Ile	Ile	Gly	Ile	Gly	Val	Gly	Ala		
		125				130					135						
gga	gct	tac	atc	ctc	agc	aga	ttt	gca	ctc	aac	cat	cca	gag	ctt	gtg	480	
Gly	Ala	Tyr	Ile	Leu	Ser	Arg	Phe	Ala	Leu	Asn	His	Pro	Glu	Leu	Val		
	140				145				150					155			
gaa	ggc	ctt	gtg	ctc	att	aat	g	g	g	g	g	g	g	g	g	528	
Glu	Gly	Leu	Val	Leu	Ile	Asn	Val	Asp	Pro	Cys	Ala	Lys	Gly	Trp	Ile		

160	165	170	
gac tgg gca gct tcc aaa ctc tct ggc ctg aca acc aat gtt gtg gac			576
Asp Trp Ala Ala Ser Lys Leu Ser Gly Leu Thr Thr Asn Val Val Asp			
175	180	185	
att att ttg gct cat cac ttt ggg cag gaa gag tta cag gcc aac ctg			624
Ile Ile Leu Ala His His Phe Gly Gln Glu Glu Leu Gln Ala Asn Leu			
190	195	200	
gac ctg atc caa acc tac aga atg cat att gcc caa gac atc aac caa			672
Asp Leu Ile Gln Thr Tyr Arg Met His Ile Ala Gln Asp Ile Asn Gln			
205	210	215	
gac aac ctg cag ctc ttc ttg aat tcc tac aat gga cgc aga gac ctg			720
Asp Asn Leu Gln Leu Phe Leu Asn Ser Tyr Asn Gly Arg Arg Asp Leu			
220	225	230	235
gag atc gaa aga ccc ata ctg ggc caa aat gat aac aaa tca aaa aca			768
Glu Ile Glu Arg Pro Ile Leu Gly Gln Asn Asp Asn Lys Ser Lys Thr			
240	245	250	
tta aag tgt tct act tta ctg gtg gta ggg gac aat tcg cct gca gtt			816
Leu Lys Cys Ser Thr Leu Leu Val Val Gly Asp Asn Ser Pro Ala Val			
255	260	265	
gag gct gtg gtc gaa tgc aat tcc cgc ctg aac cct ata aat aca act			864
Glu Ala Val Val Glu Cys Asn Ser Arg Leu Asn Pro Ile Asn Thr Thr			
270	275	280	
ttg cta aag atg gcg gac tgt ggg gga ctg ccc cag gta gtt cag cct			912
Leu Leu Lys Met Ala Asp Cys Gly Gly Leu Pro Gln Val Val Gln Pro			
285	290	295	
ggg aag ctc acc gag gcc ttc aag tac ttt ttg cag gga atg ggc tac			960
Gly Lys Leu Thr Glu Ala Phe Lys Tyr Phe Leu Gln Gly Met Gly Tyr			
300	305	310	315
ata cca tct gcc agc atg act cgg ctc gcc cga tca cga acc cac tca			1008
Ile Pro Ser Ala Ser Met Thr Arg Leu Ala Arg Ser Arg Thr His Ser			
320	325	330	
acc tcg agt agc ctc ggc tct gga gaa agt ccc ttc agc cgg tct gtc			1056
Thr Ser Ser Ser Leu Gly Ser Gly Glu Ser Pro Phe Ser Arg Ser Val			
335	340	345	
acc agc aat cag tca gat gga act caa gaa tcc tgt gag tcc cct gat			1104
Thr Ser Asn Gln Ser Asp Gly Thr Gln Glu Ser Cys Glu Ser Pro Asp			
350	355	360	
gtc ctg gac aga cac cag acc atg gag gtg tcc tgc taagcagatg			1150
Val Leu Asp Arg His Gln Thr Met Glu Val Ser Cys			
365	370	375	
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			20					25					30		
His	Asp	Ile	Glu	Thr	Thr	His	Gly	Val	Val	His	Val	Thr	Ile	Arg	Gly
		35					40					45			
Leu	Pro	Lys	Gly	Asn	Arg	Pro	Val	Ile	Leu	Thr	Tyr	His	Asp	Ile	Gly
	50					55					60				
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Gln	Glu	Ile	Thr	Gln	His	Phe	Ala	Val	Cys	His	Val	Asp	Ala	Pro	Gly
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Ser	Arg	Phe	Ala	Leu	Asn	His	Pro	Glu	Leu	Val	Glu	Gly	Leu	Val	Leu
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Ile	Asn	Val	Asp	Pro	Cys	Ala	Lys	Gly	Trp	Ile	Asp	Trp	Ala	Ala	Ser
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Lys	Leu	Ser	Gly	Leu	Thr	Thr	Asn	Val	Val	Asp	Ile	Ile	Leu	Ala	His
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His	Phe	Gly	Gln	Glu	Glu	Leu	Gln	Ala	Asn	Leu	Asp	Leu	Ile	Gln	Thr
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 Ala Phe Lys Tyr Phe Leu Gln Gly Met Gly Tyr Ile Pro Ser Ala Ser  
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 gag atc aaa cca ctt cta aat gat aag gaa cat gat ata gaa aca act 148  
 Glu Ile Lys Pro Leu Leu Asn Asp Lys Glu His Asp Ile Glu Thr Thr  
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 His Gly Val Val His Val Thr Ile Arg Gly Leu Pro Lys Gly Asn Arg  
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 Pro Val Ile Leu Thr Tyr His Asp Ile Gly Leu Asn His Lys Ser Cys  
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 Phe Asn Ala Phe Phe Asn Phe Glu Asp Met Gln Glu Ile Thr Gln His  
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 Phe Ala Val Cys His Val Asp Ala Pro Gly Gln Gln Glu Gly Ala Pro

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Ser Phe Pro Thr Gly Tyr Gln Tyr Pro Thr Met Asp Glu Leu Ala Glu				
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Met Leu Pro Val Leu Thr His Leu Ser Leu Lys Ser Ile Ile Gly				
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att gga gtt gga gct gga gct tac atc ctc agc aga ttt gca ctc aac	484			
Ile Gly Val Gly Ala Gly Ala Tyr Ile Leu Ser Arg Phe Ala Leu Asn				
125 130 135				
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His Pro Glu Leu Val Glu Gly Leu Val Leu Ile Asn Val Asp Pro Cys				
140 145 150				
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Ala Lys Gly Trp Ile Asp Trp Ala Ala Ser Lys Leu Ser Gly Leu Thr				
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Thr Asn Val Val Asp Ile Ile Leu Ala His His Phe Gly Gln Glu Glu				
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Gln Asp Ile Asn Gln Asp Asn Leu Gln Leu Phe Leu Asn Ser Tyr Asn				
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Gly Arg Arg Asp Leu Glu Ile Glu Arg Pro Ile Leu Gly Gln Asn Asp				
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Asn Lys Ser Lys Thr Leu Lys Cys Ser Thr Leu Leu Val Val Gly Asp				
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Gln Gly Met Gly Tyr Val Pro Ser Ala Ser Met Thr Arg Leu Ala Arg				
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Ser	Arg	Thr	His	Ser	Thr	Ser	Ser	Ser	Leu	Gly	Ser	Gly	Glu	Ser	Pro	
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Cys	Glu	Ser	Pro	Asp	Val	Leu	Asp	Arg	His	Gln	Thr	Met	Glu	Val	Ser	
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Thr Ile Arg Gly Leu Pro Lys Gly Asn Arg Pro Val Ile Leu Thr Tyr
      35              40              45

His Asp Ile Gly Leu Asn His Lys Ser Cys Phe Asn Ala Phe Phe Asn
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Phe Glu Asp Met Gln Glu Ile Thr Gln His Phe Ala Val Cys His Val
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Asp Ala Pro Gly Gln Gln Glu Gly Ala Pro Ser Phe Pro Thr Gly Tyr
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Gln Tyr Pro Thr Met Asp Glu Leu Ala Glu Met Leu Pro Pro Val Leu
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Thr His Leu Ser Leu Lys Ser Ile Ile Gly Ile Gly Val Gly Ala Gly
      115             120             125

Ala Tyr Ile Leu Ser Arg Phe Ala Leu Asn His Pro Glu Leu Val Glu
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Gly Leu Val Leu Ile Asn Val Asp Pro Cys Ala Lys Gly Trp Ile Asp
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 245 250 255  
 Ala Val Val Glu Cys Asn Ser Arg Leu Asn Pro Ile Asn Thr Thr Leu  
 260 265 270  
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 275 280 285  
 Lys Leu Thr Glu Ala Phe Lys Tyr Phe Leu Gln Gly Met Gly Tyr Val  
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 Pro Ser Ala Ser Met Thr Arg Leu Ala Arg Ser Arg Thr His Ser Thr  
 305 310 315 320  
 Ser Ser Ser Leu Gly Ser Gly Glu Ser Pro Phe Ser Arg Ser Val Thr  
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 Met Asp Glu Leu Gln Asp Val Gln Leu Thr  
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gag atc aaa cca ctt cta aat gat aag aat ggt aca aga aac ttc cag 148

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			30					35					40				
cac	gtc	act	ata	aga	ggc	tta	ccc	aaa	gga	aac	aga	cca	ggt	ata	cta	244	
His	Val	Thr	Ile	Arg	Gly	Leu	Pro	Lys	Gly	Asn	Arg	Pro	Val	Ile	Leu		
			45					50				55					
aca	tat	cat	gac	att	ggc	ctc	aac	cgt	aaa	tcc	tgt	ttc	aat	gca	ttc	292	
Thr	Tyr	His	Asp	Ile	Gly	Leu	Asn	Arg	Lys	Ser	Cys	Phe	Asn	Ala	Phe		
	60					65					70						
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Phe	Asn	Phe	Glu	Asp	Met	Gln	Glu	Ile	Thr	Gln	His	Phe	Ala	Val	Cys		
	75					80				85					90		
cat	gtg	gat	gcc	cca	ggc	cag	cag	gaa	ggt	gca	ccc	tct	ttc	cca	aca	388	
His	Val	Asp	Ala	Pro	Gly	Gln	Gln	Glu	Gly	Ala	Pro	Ser	Phe	Pro	Thr		
				95					100					105			
ggg	tat	cag	tac	ccc	aca	atg	gat	gag	ctg	gct	gaa	atg	ctg	cct	cct	436	
Gly	Tyr	Gln	Tyr	Pro	Thr	Met	Asp	Glu	Leu	Ala	Glu	Met	Leu	Pro	Pro		
			110					115					120				
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Val	Leu	Thr	His	Leu	Ser	Leu	Lys	Ser	Ile	Ile	Gly	Ile	Gly	Val	Gly		
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Ala	Gly	Ala	Tyr	Ile	Leu	Ser	Arg	Phe	Ala	Leu	Asn	His	Pro	Glu	Leu		
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Val	Glu	Gly	Leu	Val	Leu	Ile	Asn	Val	Asp	Pro	Cys	Ala	Lys	Gly	Trp		
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Ile	Asp	Trp	Ala	Ala	Ser	Lys	Leu	Ser	Gly	Leu	Thr	Thr	Asn	Val	Val		
				175					180					185			
gac	att	att	ttg	gct	cat	cac	ttt	ggg	cag	gaa	gag	tta	cag	gcc	aac	676	
Asp	Ile	Ile	Leu	Ala	His	His	Phe	Gly	Gln	Glu	Glu	Leu	Gln	Ala	Asn		
			190					195					200				
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Leu	Asp	Leu	Ile	Gln	Thr	Tyr	Arg	Met	His	Ile	Ala	Gln	Asp	Ile	Asn		
			205				210					215					
caa	gac	aac	ctg	cag	ctc	ttc	ttg	aat	tcc	tac	aat	gga	cgc	aga	gac	772	
Gln	Asp	Asn	Leu	Gln	Leu	Phe	Leu	Asn	Ser	Tyr	Asn	Gly	Arg	Arg	Asp		
	220					225					230						
ctg	gag	atc	gaa	aga	ccc	ata	ctg	ggc	caa	aat	gat	aac	aaa	tca	aaa	820	
Leu	Glu	Ile	Glu	Arg	Pro	Ile	Leu	Gly	Gln	Asn	Asp	Asn	Lys	Ser	Lys		

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Thr Leu Lys Cys Ser Thr Leu Leu Val Val Gly Asp Asn Ser Pro Ala				
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gtt gag gct gtg atg gcg gac tgt ggg gga ctg ccc cag gta gtt cag				916
Val Glu Ala Val Met Ala Asp Cys Gly Gly Leu Pro Gln Val Val Gln				
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cct ggg aag ttc acc gag gcc ttc aag tac ttt ttg cag gga atg ggc				964
Pro Gly Lys Phe Thr Glu Ala Phe Lys Tyr Phe Leu Gln Gly Met Gly				
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Tyr Thr Pro Ser Ala Ser Met Thr Arg Leu Ala Arg Ser Arg Thr His				
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Ser Thr Ser Ser Ser Leu Gly Ser Gly Glu Ser Pro Phe Ser Arg Ser				
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gtc acc agc aat cag tca gat gga act caa gaa tcc tgt gag tcc cct				1108
Val Thr Ser Asn Gln Ser Asp Gly Thr Gln Glu Ser Cys Glu Ser Pro				
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gat gtc ctg gac aga cac cag acc atg gag gtg tcc tgc taagcagatg				1157
Asp Val Leu Asp Arg His Gln Thr Met Glu Val Ser Cys				
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His Asp Ile Glu Thr Thr His Gly Val Val His Val Thr Ile Arg Gly				
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Leu Pro Lys Gly Asn Arg Pro Val Ile Leu Thr Tyr His Asp Ile Gly				
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Leu Asn Arg Lys Ser Cys Phe Asn Ala Phe Phe Asn Phe Glu Asp Met				

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Gln Glu Ile Thr	Gln His Phe Ala Val	Cys His Val Asp Ala	Pro Gly			
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Gln Gln Glu Gly	Ala Pro Ser Phe	Pro Thr Gly Tyr	Gln Tyr Pro Thr			
	100	105	110			
Met Asp Glu Leu	Ala Glu Met Leu	Pro Pro Val Leu	Thr His Leu Ser			
	115	120	125			
Leu Lys Ser Ile	Ile Gly Ile Gly	Val Gly Ala Gly	Ala Tyr Ile Leu			
	130	135	140			
Ser Arg Phe Ala	Leu Asn His Pro	Glu Leu Val Glu	Gly Leu Val Leu			
	145	150	155	160		
Ile Asn Val Asp	Pro Cys Ala Lys	Gly Trp Ile Asp	Trp Ala Ala Ser			
	165	170	175			
Lys Leu Ser Gly	Leu Thr Thr Asn	Val Val Asp Ile	Ile Leu Ala His			
	180	185	190			
His Phe Gly Gln	Glu Glu Leu Gln	Ala Asn Leu Asp	Leu Ile Gln Thr			
	195	200	205			
Tyr Arg Met His	Ile Ala Gln Asp	Ile Asn Gln Asp	Asn Leu Gln Leu			
	210	215	220			
Phe Leu Asn Ser	Tyr Asn Gly Arg	Arg Asp Leu Glu	Ile Glu Arg Pro			
	225	230	235	240		
Ile Leu Gly Gln	Asn Asp Asn Lys	Ser Lys Thr Leu	Lys Cys Ser Thr			
	245	250	255			
Leu Leu Val Val	Gly Asp Asn Ser	Pro Ala Val Glu	Ala Val Met Ala			
	260	265	270			
Asp Cys Gly Gly	Leu Pro Gln Val	Val Gln Pro Gly	Lys Phe Thr Glu			
	275	280	285			
Ala Phe Lys Tyr	Phe Leu Gln Gly	Met Gly Tyr Thr	Pro Ser Ala Ser			
	290	295	300			
Met Thr Arg Leu	Ala Arg Ser Arg	Thr His Ser Thr	Ser Ser Ser Leu			
	305	310	315	320		
Gly Ser Gly Glu	Ser Pro Phe Ser	Arg Ser Val Thr	Ser Asn Gln Ser			
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Asn Asp Lys Asn Gly Thr Arg Asn Phe Gln Asp Phe Asp Cys Gln Tyr	
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cag tac ccc aca atg gat gag ctg gct gaa atg ctg cct cct gtt ctt	144
Gln Tyr Pro Thr Met Asp Glu Leu Ala Glu Met Leu Pro Pro Val Leu	
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acc cac cta agc ctg aaa agc atc att gga att gga gtt gga gct gga	192
Thr His Leu Ser Leu Lys Ser Ile Ile Gly Ile Gly Val Gly Ala Gly	
50 55 60	
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Ala Tyr Ile Leu Ser Arg Phe Ala Leu Asn His Pro Glu Leu Val Glu	
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Gly Leu Val Leu Ile Asn Val Asp Pro Cys Ala Lys Gly Trp Ile Asp	
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tgg gca gct tcc aaa ctc tct ggc ctg aca acc aat gtt gtg gac att	336
Trp Ala Ala Ser Lys Leu Ser Gly Leu Thr Thr Asn Val Val Asp Ile	
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Ile Leu Ala His His Phe Gly Gln Glu Glu Leu Gln Ala Asn Leu Asp	
115 120 125	
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Leu Ile Gln Thr Tyr Arg Met His Ile Ala Gln Asp Ile Asn Gln Asp	
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Asn Leu Gln Leu Phe Leu Asn Ser Tyr Asn Gly Arg Arg Asp Leu Glu	
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atc gaa aga ccc ata ctg ggc caa aat gat aac aaa tca aaa aca tta	528
Ile Glu Arg Pro Ile Leu Gly Gln Asn Asp Asn Lys Ser Lys Thr Leu	
165 170 175	
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Lys Cys Ser Thr Leu Leu Val Val Gly Asp Asn Ser Pro Ala Val Glu	
180 185 190	
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Ala Val Val Glu Cys Asn Ser Arg Leu Asn Pro Ile Asn Thr Thr Leu	
195 200 205	
cta aag atg gcg gac tgt ggg gga ctg ccc cag gta gtt cag cct ggg	672
Leu Lys Met Ala Asp Cys Gly Gly Leu Pro Gln Val Val Gln Pro Gly	
210 215 220	
aag ctc acc gag gcc ttc aag tac ttt ttg cag gga atg ggc tac gtc	720
Lys Leu Thr Glu Ala Phe Lys Tyr Phe Leu Gln Gly Met Gly Tyr Val	
225 230 235 240	
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Pro Ser Ala Ser Met Thr Arg Leu Ala Arg Ser Arg Thr His Ser Thr	
245 250 255	
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Ser Ser Ser Leu Gly Ser Gly Glu Ser Pro Phe Ser Arg Ser Val Thr	
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Ser Asn Gln Ser Asp Gly Thr Gln Glu Ser Cys Glu Ser Pro Asp Val	
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35 40 45	
Thr His Leu Ser Leu Lys Ser Ile Ile Gly Ile Gly Val Gly Ala Gly	
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Ala Tyr Ile Leu Ser Arg Phe Ala Leu Asn His Pro Glu Leu Val Glu	
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Trp Ala Ala Ser Lys Leu Ser Gly Leu Thr Thr Asn Val Val Asp Ile 100 105 110		
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Leu Ile Gln Thr Tyr Arg Met His Ile Ala Gln Asp Ile Asn Gln Asp 130 135 140		
Asn Leu Gln Leu Phe Leu Asn Ser Tyr Asn Gly Arg Arg Asp Leu Glu 145 150 155 160		
Ile Glu Arg Pro Ile Leu Gly Gln Asn Asp Asn Lys Ser Lys Thr Leu 165 170 175		
Lys Cys Ser Thr Leu Leu Val Val Gly Asp Asn Ser Pro Ala Val Glu 180 185 190		
Ala Val Val Glu Cys Asn Ser Arg Leu Asn Pro Ile Asn Thr Thr Leu 195 200 205		
Leu Lys Met Ala Asp Cys Gly Gly Leu Pro Gln Val Val Gln Pro Gly 210 215 220		
Lys Leu Thr Glu Ala Phe Lys Tyr Phe Leu Gln Gly Met Gly Tyr Val 225 230 235 240		
Pro Ser Ala Ser Met Thr Arg Leu Ala Arg Ser Arg Thr His Ser Thr 245 250 255		
Ser Ser Ser Leu Gly Ser Gly Glu Ser Pro Phe Ser Arg Ser Val Thr 260 265 270		
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	1 5	
ccc tcg ccg gtg cga cgg tac cac cat ccc agc tgt gag gct gcc atc 103		
Pro Ser Pro Val Arg Arg Tyr His His Pro Ser Cys Glu Ala Ala Ile		
10 15 20		



aac acc cac atc agc ctg gag ctc cac gca tcc tat gtg tac ctg tcc 151  
 Asn Thr His Ile Ser Leu Glu Leu His Ala Ser Tyr Val Tyr Leu Ser  
                   25                                  30                                  35

atg gcc ttc tac ttc gac cag gac gac gcg gcc ctg gag cac ttt gac 199  
 Met Ala Phe Tyr Phe Asp Gln Asp Asp Ala Ala Leu Glu His Phe Asp  
                   40                                  45                                  50

cgc tac ttc ctg cgc cag tcg cag gag aaa agg gag cac gcc cag gag 247  
 Arg Tyr Phe Leu Arg Gln Ser Gln Glu Lys Arg Glu His Ala Gln Glu  
                   55                                  60                                  65

ctg atg agc ctg cag aac ctg cgc ggt ggc cgc atc tgc ctt cat gac 295  
 Leu Met Ser Leu Gln Asn Leu Arg Gly Gly Arg Ile Cys Leu His Asp  
                   70                                  75                                  80                                  85

atc agg aag cca gag ggc caa ggc tgg gag agc ggg ctc aag gcc atg 343  
 Ile Arg Lys Pro Glu Gly Gln Gly Trp Glu Ser Gly Leu Lys Ala Met  
                                   90                                  95                                  100

gag tgc acc ttc cac ctg gag aag aac atc aac cag agc ctc ctg gag 391  
 Glu Cys Thr Phe His Leu Glu Lys Asn Ile Asn Gln Ser Leu Leu Glu  
                                   105                                  110                                  115

ctg cac cag ctg gcc agg gag aac ggc gac ccc cag ctc tgc gac ttc 439  
 Leu His Gln Leu Ala Arg Glu Asn Gly Asp Pro Gln Leu Cys Asp Phe  
                   120                                  125                                  130

ctg gag aac gac ttc ctg aac cag cag gcc aag acc atc aaa gag ctg 487  
 Leu Glu Asn Asp Phe Leu Asn Gln Gln Ala Lys Thr Ile Lys Glu Leu  
                   135                                  140                                  145

ggt ggc tac ctg agc aac ctg cac aag atg ggg gcc ccg gaa gca ggc 535  
 Gly Gly Tyr Leu Ser Asn Leu His Lys Met Gly Ala Pro Glu Ala Gly  
                   150                                  155                                  160                                  165

ctg gca gag tac ctc ttt aac aag ctc acc ctg ggc cgc agc gaa cca 583  
 Leu Ala Glu Tyr Leu Phe Asn Lys Leu Thr Leu Gly Arg Ser Glu Pro  
                                   170                                  175                                  180

ctt cct tgaaccagca ggccaagacc atcaaagaga ttggtggcta cct 632  
 Leu Pro

<210>260

<211>183

<212>PRT

<213> Homo sapiens

<400>260

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                   20                                  25                                  30

Tyr Val Tyr Leu Ser Met Ala Phe Tyr Phe Asp Gln Asp Asp Ala Ala  
 35 40 45  
 Leu Glu His Phe Asp Arg Tyr Phe Leu Arg Gln Ser Gln Glu Lys Arg  
 50 55 60  
 Glu His Ala Gln Glu Leu Met Ser Leu Gln Asn Leu Arg Gly Gly Arg  
 65 70 75 80  
 Ile Cys Leu His Asp Ile Arg Lys Pro Glu Gly Gln Gly Trp Glu Ser  
 85 90 95  
 Gly Leu Lys Ala Met Glu Cys Thr Phe His Leu Glu Lys Asn Ile Asn  
 100 105 110  
 Gln Ser Leu Leu Glu Leu His Gln Leu Ala Arg Glu Asn Gly Asp Pro  
 115 120 125  
 Gln Leu Cys Asp Phe Leu Glu Asn Asp Phe Leu Asn Gln Gln Ala Lys  
 130 135 140  
 Thr Ile Lys Glu Leu Gly Gly Tyr Leu Ser Asn Leu His Lys Met Gly  
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 Gly Arg Ser Glu Pro Leu Pro  
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 Met Glu Leu His Phe Lys Tyr Leu Gly Ala Met Gln  
 5 10

gtg gcg gac aag aag att gaa ggg gaa aaa cac gac atg gtc cgg cga 148  
 Val Ala Asp Lys Lys Ile Glu Gly Glu Lys His Asp Met Val Arg Arg  
 15 20 25

gga gag atc atc gac aat gac acc gag gag gag ttc tac ctc cgg cgc 196  
 Gly Glu Ile Ile Asp Asn Asp Thr Glu Glu Glu Phe Tyr Leu Arg Arg  
 30 35 40

ctg gat gcg ggg ctc ttt gtt ctc cag cac atc tgc tac atc atg gcc 244  
 Leu Asp Ala Gly Leu Phe Val Leu Gln His Ile Cys Tyr Ile Met Ala

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gag atc tgc aat gcc aat gtc ccc cag att cgc cag agg gtt cac cag				292
Glu Ile Cys Asn Ala Asn Val Pro Gln Ile Arg Gln Arg Val His Gln	65	70	75	
atc cta aac atg cga gga agc tcc atc aaa att gtc agg cat atc atc				340
Ile Leu Asn Met Arg Gly Ser Ser Ile Lys Ile Val Arg His Ile Ile	80	85	90	
aag gag tat gca gag aac atc ggg gac ggc cgg agc ccg gag ttc cgg				388
Lys Glu Tyr Ala Glu Asn Ile Gly Asp Gly Arg Ser Pro Glu Phe Arg	95	100	105	
gag aac gag caa aag cgc atc ctg ggc ttg ctg gag aac ttc				430
Glu Asn Glu Gln Lys Arg Ile Leu Gly Leu Leu Glu Asn Phe	110	115	120	
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Lys Ile Glu Gly Glu Lys His Asp Met Val Arg Arg Gly Glu Ile Ile	20	25	30	
Asp Asn Asp Thr Glu Glu Glu Phe Tyr Leu Arg Arg Leu Asp Ala Gly	35	40	45	
Leu Phe Val Leu Gln His Ile Cys Tyr Ile Met Ala Glu Ile Cys Asn	50	55	60	
Ala Asn Val Pro Gln Ile Arg Gln Arg Val His Gln Ile Leu Asn Met	65	70	75	80
Arg Gly Ser Ser Ile Lys Ile Val Arg His Ile Ile Lys Glu Tyr Ala	85	90	95	
Glu Asn Ile Gly Asp Gly Arg Ser Pro Glu Phe Arg Glu Asn Glu Gln	100	105	110	
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<213> Homo sapiens

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cattccctgt gtggtgtcct cggggggac atg ccc atc cgt atc acc tgg agg      152
                               Met Pro Ile Arg Ile Thr Trp Arg
                               5

aag gac gga cag gtg atc atc tca ggc tcg ggc gtg acc atc gag agc      200
Lys Asp Gly Gln Val Ile Ile Ser Gly Ser Gly Val Thr Ile Glu Ser
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aag gaa ttc atg agc tcc ctg cag atc tct agc gtc tcc ctc aag cac      248
Lys Glu Phe Met Ser Ser Leu Gln Ile Ser Ser Val Ser Leu Lys His
  25                      30                      35                      40

aac ggc aac tat aca tgc atc gcc agc aac gca gcc gcc acc gtg agc      296
Asn Gly Asn Tyr Thr Cys Ile Ala Ser Asn Ala Ala Ala Thr Val Ser
                      45                      50                      55

att gtg tct cca gaa cac agg ttt ttt att acc tac cac ggc ggg ctg      344
Ile Val Ser Pro Glu His Arg Phe Phe Ile Thr Tyr His Gly Gly Leu
                      60                      65                      70

tac atc tct gac gta cag aag gag gac gcc ctc tcc acc tat cgc tgc      392
Tyr Ile Ser Asp Val Gln Lys Glu Asp Ala Leu Ser Thr Tyr Arg Cys
                      75                      80                      85

atc acc aag cac aag tat agc ggg gag acc cgg cag agc aat ggg gca      440
Ile Thr Lys His Lys Tyr Ser Gly Glu Thr Arg Gln Ser Asn Gly Ala
                      90                      95                      100

cgc ctc tct gtg aca gac cct gct gag tcg atc ccc acc atc ctg gat      488
Arg Leu Ser Val Thr Asp Pro Ala Glu Ser Ile Pro Thr Ile Leu Asp
105                      110                      115                      120

ggc ttc cac tcc cag gaa gtg tgg gcc ggc cac acc gtg gag ctg ccc      536
Gly Phe His Ser Gln Glu Val Trp Ala Gly His Thr Val Glu Leu Pro
                      125                      130                      135

tgc acc gcc tcg ggc tac cct atc ccc gcc atc cgc tgg ctc aag gat      584
Cys Thr Ala Ser Gly Tyr Pro Ile Pro Ala Ile Arg Trp Leu Lys Asp
                      140                      145                      150

ggc cgg ccc ctc ccg gct gac agc cgc tgg acc aag cgc atc aca ggg      632

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Leu	Thr	Ile	Ser	Asp	Leu	Arg	Thr	Glu	Asp	Ser	Gly	Thr	Tyr	Ile	Cys	
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gag	gtc	acc	aac	acc	ttc	ggt	tcg	gca	gag	gcc	aca	ggc	atc	ctc	atg	728
Glu	Val	Thr	Asn	Thr	Phe	Gly	Ser	Ala	Glu	Ala	Thr	Gly	Ile	Leu	Met	
		185				190				195					200	
gtc	att	gat	ccc	ctt	cat	gtg	acc	ctg	aca	cca	aag	aag	ctg	aag	acc	776
Val	Ile	Asp	Pro	Leu	His	Val	Thr	Leu	Thr	Pro	Lys	Lys	Leu	Lys	Thr	
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ggc	att	ggc	agc	acg	gtc	atc	ctc	tcc	tgt	gcc	ctg	acg	ggc	tcc	cca	824
Gly	Ile	Gly	Ser	Thr	Val	Ile	Leu	Ser	Cys	Ala	Leu	Thr	Gly	Ser	Pro	
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gag	ttc	acc	atc	cgc	tgg	tat	cgc	aac	acg	gag	ctg	gtg	ctg	cct	gac	872
Glu	Phe	Thr	Ile	Arg	Trp	Tyr	Arg	Asn	Thr	Glu	Leu	Val	Leu	Pro	Asp	
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gag	gcc	atc	tcc	atc	cgc	ggg	ctc	agc	aac	gag	acg	ctg	ctc	atc	acc	920
Glu	Ala	Ile	Ser	Ile	Arg	Gly	Leu	Ser	Asn	Glu	Thr	Leu	Leu	Ile	Thr	
		250				255					260					
tcg	gcc	cag	aag	agc	cat	tcc	ggg	gcc	tac	cag	tgc	ttc	gct	acc	cgc	968
Ser	Ala	Gln	Lys	Ser	His	Ser	Gly	Ala	Tyr	Gln	Cys	Phe	Ala	Thr	Arg	
		265			270				275						280	
aag	gcc	cag	acc	gcc	cag	gac	ttt	gcc	atc	att	gca	ctt	gag	gat	ggc	1016
Lys	Ala	Gln	Thr	Ala	Gln	Asp	Phe	Ala	Ile	Ile	Ala	Leu	Glu	Asp	Gly	
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acg	ccc	cgc	atc	gtc	tcg	tcc	ttc	agc	gag	aag	gtg	gtc	aac	ccc	ggg	1064
Thr	Pro	Arg	Ile	Val	Ser	Ser	Phe	Ser	Glu	Lys	Val	Val	Asn	Pro	Gly	
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gag	cag	ttc	tca	ctg	atg	tgt	gcg	gcc	aag	ggc	gcc	ccg	ccc	ccc	acg	1112
Glu	Gln	Phe	Ser	Leu	Met	Cys	Ala	Ala	Lys	Gly	Ala	Pro	Pro	Pro	Thr	
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gtc	acc	tgg	gcc	ctc	gac	gat	gag	ccc	atc	gtg	cgg	gat	ggc	agc	cac	1160
Val	Thr	Trp	Ala	Leu	Asp	Asp	Glu	Pro	Ile	Val	Arg	Asp	Gly	Ser	His	
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cgc	acc	aac	cag	tac	acc	atg	tcg	gac	ggc	acc	acc	atc	agc	cac	atg	1208
Arg	Thr	Asn	Gln	Tyr	Thr	Met	Ser	Asp	Gly	Thr	Thr	Ile	Ser	His	Met	
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Asn	Val	Thr	Gly	Pro	Gln	Ile	Arg	Asp	Gly	Gly	Val	Tyr	Arg	Cys	Thr	
				365				370						375		
gcg	cgg	aac	ttg	gtg	ggc	agt	gct	gaa	tat	cag	gcg	cga	ata	aac	gta	1304
Ala	Arg	Asn	Leu	Val	Gly	Ser	Ala	Glu	Tyr	Gln	Ala	Arg	Ile	Asn	Val	

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ggc atg gat gag ggg gag tac ctg tgc agt gtc ctc atc cag ccc cag Gly Met Asp Glu Gly Glu Tyr Leu Cys Ser Val Leu Ile Gln Pro Gln 460 465 470			1544
ctc tcc atc agc cag agc gtt cac gta gcc gtc aaa gtg ccc cct ctg Leu Ser Ile Ser Gln Ser Val His Val Ala Val Lys Val Pro Pro Leu 475 480 485			1592
atc cag ccc ttc gaa ttc cca ccc gcc tcc atc ggc cag ctg ctc tac Ile Gln Pro Phe Glu Phe Pro Pro Ala Ser Ile Gly Gln Leu Leu Tyr 490 495 500			1640
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Lys Ile Gly Arg Ser Glu Pro Ser Lys Glu Leu Thr Ile Ser Thr Glu	
860 865 870	
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Glu Ala Ala Pro Asp Gly Pro Pro Met Asp Val Thr Leu Gln Pro Val	
875 880 885	
acc tca cag agc atc cag gtg acc tgg aag gca ccc aag aag gag ctg	2840
Thr Ser Gln Ser Ile Gln Val Thr Trp Lys Ala Pro Lys Lys Glu Leu	
890 895 900	
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Gln Asn Gly Val Ile Arg Gly Tyr Gln Ile Gly Tyr Arg Glu Asn Ser	
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Gln Asn Ile Thr Thr Thr Arg Glu Arg Val Glu Leu Arg Gly Met Glu	
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Lys Phe Thr Asn Tyr Ser Val Gln Val Leu Ala Tyr Thr Gln Ala Gly	
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Pro Gly Pro Pro Ala Gly Ile Lys Ala Val Pro Ser Ser Ala Ser Ser	
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Val Val Val Ser Trp Leu Pro Pro Thr Lys Pro Asn Gly Val Ile Arg	
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Pro Ala Val Lys Trp Thr Lys Asp Ser Glu Asp Ser Ala Ile Pro Val	
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Ser Met Asp Gly His Arg Leu Ile His Thr Asn Gly Thr Leu Leu Leu	
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Asn Thr Gly Gly Phe Asp Thr Ile Ile Val Asn Leu Leu Val Gln Val	
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Pro Pro Asp Gln Pro Arg Leu Thr Val Ser Lys Thr Ser Ala Ser Ser	
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Ile Thr Leu Thr Trp Ile Pro Gly Asp Asn Gly Gly Ser Ser Ile Arg	

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aga ggc cca ccc agc atc cgg gct atg cgg aac atc aca gca gtc gcc	1352
Arg Gly Pro Pro Ser Ile Arg Ala Met Arg Asn Ile Thr Ala Val Ala	
395 400 405	
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Gly Arg Asp Thr Leu Ile Asn Cys Arg Val Ile Gly Tyr Pro Tyr Tyr	
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tcc atc aag tgg tac aag gat gcc ttg ctg ctg cca gac aac cac cgc	1448
Ser Ile Lys Trp Tyr Lys Asp Ala Leu Leu Leu Pro Asp Asn His Arg	
425 430 435 440	
cag gtg gtg ttt gag aat ggg acc ctc aag ctg act gac gtg cag aag	1496
Gln Val Val Phe Glu Asn Gly Thr Leu Lys Leu Thr Asp Val Gln Lys	
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Gly Met Asp Glu Gly Glu Tyr Leu Cys Ser Val Leu Ile Gln Pro Gln	
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ctc tcc atc agc cag agc gtt cac gta gcc gtc aaa gtg ccc cct ctg	1592
Leu Ser Ile Ser Gln Ser Val His Val Ala Val Lys Val Pro Pro Leu	
475 480 485	
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Ile Gln Pro Phe Glu Phe Pro Pro Ala Ser Ile Gly Gln Leu Leu Tyr	
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Arg Lys Asp Gly Gln Val Ile Ile Ser Gly Ser Gly Val Thr Ile Glu	
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Ser Lys Glu Phe Met Ser Ser Leu Gln Ile Ser Ser Val Ser Leu Lys	
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His Asn Gly Asn Tyr Thr Cys Ile Ala Ser Asn Ala Ala Ala Thr Val	

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Ser Arg Glu Arg Gln Leu Ile	Val Arg Val Pro Pro Arg Phe Val Val		
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Gln Pro Asn Asn Gln Asp Gly Ile Tyr Gly Lys Ala Gly Val Leu Asn			
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tgc tcg gtg gac ggc tac ccc cca ccc aag gtc atg tgg aag cat gcc			1976
Cys Ser Val Asp Gly Tyr Pro Pro Pro Lys Val Met Trp Lys His Ala			
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aag ggt agc ggg aac ccc cag cag tac cac cct gtg ccc ctc act ggc			2024
Lys Gly Ser Gly Asn Pro Gln Gln Tyr His Pro Val Pro Leu Thr Gly			
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cgc atc cag atc ctg ccc aac agc tcg ctg ctg atc cgc cac gtc cta			2072
Arg Ile Gln Ile Leu Pro Asn Ser Ser Leu Leu Ile Arg His Val Leu			
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Glu Glu Asp Ile Gly Tyr Tyr Leu Cys Gln Ala Ser Asn Gly Val Gly			
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acc gac atc agc aag tcc atg ttc ctc aca gtc aag atc ccc acc atc			2168
Thr Asp Ile Ser Lys Ser Met Phe Leu Thr Val Lys Ile Pro Thr Ile			
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Leu Asp Gly Phe His Ser Gln Glu Val Trp Ala Gly His Thr Val Glu			
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Leu Pro Cys Thr Ala Ser Gly Tyr Pro Ile Pro Ala Ile Arg Trp Leu			
700	705 710		
aag gat ggc cgg ccc ctc ccg gct gac agc cgc tgg acc aag cgc atc			2312
Lys Asp Gly Arg Pro Leu Pro Ala Asp Ser Arg Trp Thr Lys Arg Ile			
715	720 725		
aca ggg ctg acc atc agc gac ttg cgg acc gag gac agc ggc acc tac			2360
Thr Gly Leu Thr Ile Ser Asp Leu Arg Thr Glu Asp Ser Gly Thr Tyr			
730	735 740		
att tgt gag gtc acc aac acc ttc ggt gag gcc aca ggc atc ctc atg			2408
Ile Cys Glu Val Thr Asn Thr Phe Gly Glu Ala Thr Gly Ile Leu Met			
745	750 755 760		
gtc att ggt gag gag ccc ccc gac ccc cca gag ctg gag atc cgg gag			2456
Val Ile Gly Glu Glu Pro Pro Asp Pro Pro Glu Leu Glu Ile Arg Glu			
765	770 775		
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Val Lys Ala Arg Ser Met Asn Leu Arg Trp Thr Gln Arg Phe Asp Gly			
780	785 790		

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Asn Ser Ile Ile Thr Gly Phe Asp Ile Glu Tyr Lys Asn Lys Ser Asp	
795 800 805	
tcc tgg gac ttc aag cag tcc aca cgc aac atc tcc ccc acc atc aac	2600
Ser Trp Asp Phe Lys Gln Ser Thr Arg Asn Ile Ser Pro Thr Ile Asn	
810 815 820	
cag gcc aac att gtg gac ttg cac ccg gca tct gtg tac agc atc cgc	2648
Gln Ala Asn Ile Val Asp Leu His Pro Ala Ser Val Tyr Ser Ile Arg	
825 830 835 840	
atg tac tct ttc aac aag att ggc cgc agt gaa cca agc aag gag ctc	2696
Met Tyr Ser Phe Asn Lys Ile Gly Arg Ser Glu Pro Ser Lys Glu Leu	
845 850 855	
acc atc agc act gag gag gcc tca gct ccc gat ggg ccc ccc atg gat	2744
Thr Ile Ser Thr Glu Glu Ala Ser Ala Pro Asp Gly Pro Pro Met Asp	
860 865 870	
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Val Thr Leu Gln Pro Val Thr Ser Gln Ser Ile Gln Val Thr Trp Lys	
875 880 885	
cag gca ccc aag aag gag ctg cag aac ggt gtc atc cgg ggc tac cag	2840
Gln Ala Pro Lys Lys Glu Leu Gln Asn Gly Val Ile Arg Gly Tyr Gln	
890 895 900	
att ggc tac aga gag aac agc ccc ggc agc aac ggg cag tac agc atc	2888
Ile Gly Tyr Arg Glu Asn Ser Pro Gly Ser Asn Gly Gln Tyr Ser Ile	
905 910 915 920	
gtg gag atg aag gcc acg ggg gac agc gag gtc tac acc ctg gac aac	2936
Val Glu Met Lys Ala Thr Gly Asp Ser Glu Val Tyr Thr Leu Asp Asn	
925 930 935	
ctc aag aag ttc gcc cag tat ggg gtg gtg gtc cag gcc ttc aat cgg	2984
Leu Lys Lys Phe Ala Gln Tyr Gly Val Val Val Gln Ala Phe Asn Arg	
940 945 950	
gct ggc acg ggg ccc tct tcc agc gag atc aat gcc acc act ctg gag	3032
Ala Gly Thr Gly Pro Ser Ser Ser Glu Ile Asn Ala Thr Thr Leu Glu	
955 960 965	
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Asp Val Pro Ser Gln Pro Pro Glu Asn Val Arg Ala Leu Ser Ile Thr	
970 975 980	
tct gac gtg gcc gtc atc tcc tgg tca gag ccc ccg cgc agc acc ctc	3128
Ser Asp Val Ala Val Ile Ser Trp Ser Glu Pro Pro Arg Ser Thr Leu	
985 990 995 000	
aat ggc gtc ctc aaa ggc tat cgg gtc atc ttc tgg tcc ctc tat gtt	3176
Asn Gly Val Leu Lys Gly Tyr Arg Val Ile Phe Trp Ser Leu Tyr Val	
005 010 015	



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Asp Gly Glu Trp Gly Glu Met Gln Asn Ile Thr Thr Thr Arg Glu Arg	
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Val Glu Leu Arg Gly Met Glu Lys Phe Thr Asn Tyr Ser Val Gln Val	
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050 055 060	
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115 120 125	
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Tyr Arg Ile Ala His Leu Asn Arg Gly Gln Gln Tyr Leu Leu Trp Val	
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Ala Ala Val Thr Ser Ala Gly Arg Gly Asn Ser Ser Glu Lys Val Thr	
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atc gag cct gct ggc aag gcc cca gca aag atc atc tcc ttt ggg ggc	3656
Ile Glu Pro Ala Gly Lys Ala Pro Ala Lys Ile Ile Ser Phe Gly Gly	
165 170 175	
acc gtg aca aca cct tgg atg aaa gat gtt cgg ctg cct tgc aat tca	3704
Thr Val Thr Thr Pro Trp Met Lys Asp Val Arg Leu Pro Cys Asn Ser	
180 185 190	
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Val Gly Asp Pro Ala Pro Ala Val Lys Trp Thr Lys Asp Ser Glu Asp	
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Ser Ala Ile Pro Val Ser Met Asp Gly His Arg Leu Ile His Thr Asn	
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Gly Thr Leu Leu Leu Arg Ala Val Lys Ala Glu Asp Ser Gly Tyr Tyr	
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Thr Cys Thr Ala Thr Asn Thr Gly Gly Phe Asp Thr Ile Ile Val Asn  
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 Gly Asp Asp Val Lys Lys Leu Phe Thr Ile Gly Cys Pro Val Ile Leu

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gcc aca ctg ggg gtg gca ctg ctc ttc atc gta cgc aag aag agg aag				4616
Ala Thr Leu Gly Val Ala Leu Leu Phe Ile Val Arg Lys Lys Arg Lys	485	490	495	
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Glu Lys Arg Leu Lys Arg Leu Arg Asp Ala Lys Ser Leu Ala Glu Met	500	505	510	
ttg ata agc aag aac aat aga agc ttt gac acc cct gtg aaa ggg cca				4712
Leu Ile Ser Lys Asn Asn Arg Ser Phe Asp Thr Pro Val Lys Gly Pro	515	520	525	
ccc cag ggc cca cgg cta cac att gac atc ccc agg gtc cag ctg ctc				4760
Pro Gln Gly Pro Arg Leu His Ile Asp Ile Pro Arg Val Gln Leu Leu	530	535	540	
atc gag gac aaa gaa ggc atc aag caa ctg ggt gag gac aag gcc acc				4808
Ile Glu Asp Lys Glu Gly Ile Lys Gln Leu Gly Glu Asp Lys Ala Thr	545	550	555	560
atc cct gtg aca gat gct gag ttc agc caa gct gtc aac cca cag agc				4856
Ile Pro Val Thr Asp Ala Glu Phe Ser Gln Ala Val Asn Pro Gln Ser	565	570	575	
ttc tgt act ggc gtc tcc ttg cac cac cca acc ctc atc cag agc aca				4904
Phe Cys Thr Gly Val Ser Leu His His Pro Thr Leu Ile Gln Ser Thr	580	585	590	
gga ccc ctc atc gac atg tct gac atc cgg cca gga acc gat cca gtg				4952
Gly Pro Leu Ile Asp Met Ser Asp Ile Arg Pro Gly Thr Asp Pro Val	595	600	605	
tcc agg aag aat gtg aag tca gcc cac agc acc cgg aac cgg tac tca				5000
Ser Arg Lys Asn Val Lys Ser Ala His Ser Thr Arg Asn Arg Tyr Ser	610	615	620	
agc cag tgg acc ctg acc aag tgc cag gcc tcc aca cct gcc cgc acc				5048
Ser Gln Trp Thr Leu Thr Lys Cys Gln Ala Ser Thr Pro Ala Arg Thr	625	630	635	640
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Leu Thr Ser Asp Trp Arg Thr Val Gly Ser Gln His Gly Val Thr Val	645	650	655	
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Thr Glu Ser Asp Ser Tyr Ser Ala Ser Leu Ser Gln Asp Thr Asp Lys	660	665	670	
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Gly Arg Asn Ser Met Val Ser Thr Glu Ser Ala Ser Ser Thr Tyr Glu	675	680	685	
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Glu Leu Ala Arg Ala Tyr Glu His Ala Lys Leu Glu Glu Gln Leu Gln	690	695	700	

cac gcc aag ttt gag atc acc gag tgc ttc atc tct gac agt tcc tct His Ala Lys Phe Glu Ile Thr Glu Cys Phe Ile Ser Asp Ser Ser Ser 705 710 715 720	5288
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cac ctc cct cct cag tcc atc cat gtt gta gca tat gtc aga att tcc His Leu Pro Pro Gln Ser Ile His Val Val Ala Tyr Val Arg Ile Ser 770 775 780	5480
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ggt cat cga atg gaa gaa gcc aaa cca agg gag aga cag acc tct gga Gly His Arg Met Glu Glu Ala Lys Pro Arg Glu Arg Gln Thr Ser Gly 850 855 860	5720
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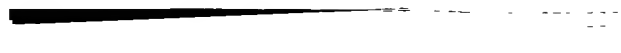
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Ile Ser Ser Val Ser Leu Lys His Asn Gly Asn Tyr Thr Cys Ile Ala  
35 40 45  
Ser Asn Ala Ala Ala Thr Val Ser Ile Val Ser Pro Glu His Arg Phe  
50 55 60  
Phe Ile Thr Tyr His Gly Gly Leu Tyr Ile Ser Asp Val Gln Lys Glu  
65 70 75 80  
Asp Ala Leu Ser Thr Tyr Arg Cys Ile Thr Lys His Lys Tyr Ser Gly  
85 90 95  
Glu Thr Arg Gln Ser Asn Gly Ala Arg Leu Ser Val Thr Asp Pro Ala  
100 105 110  
Glu Ser Ile Pro Thr Ile Leu Asp Gly Phe His Ser Gln Glu Val Trp  
115 120 125  
Ala Gly His Thr Val Glu Leu Pro Cys Thr Ala Ser Gly Tyr Pro Ile  
130 135 140  
Pro Ala Ile Arg Trp Leu Lys Asp Gly Arg Pro Leu Pro Ala Asp Ser  
145 150 155 160  
Arg Trp Thr Lys Arg Ile Thr Gly Leu Thr Ile Ser Asp Leu Arg Thr  
165 170 175  
Glu Asp Ser Gly Thr Tyr Ile Cys Glu Val Thr Asn Thr Phe Gly Ser  
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Ala Glu Ala Thr Gly Ile Leu Met Val Ile Asp Pro Leu His Val Thr  
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Leu Thr Pro Lys Lys Leu Lys Thr Gly Ile Gly Ser Thr Val Ile Leu  
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 Ser Cys Ala Leu Thr Gly Ser Pro Glu Phe Thr Ile Arg Trp Tyr Arg  
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 Ser Asn Glu Thr Leu Leu Ile Thr Ser Ala Gln Lys Ser His Ser Gly  
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 Pro Ile Val Arg Asp Gly Ser His Arg Thr Asn Gln Tyr Thr Met Ser  
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 Asp Gly Thr Thr Ile Ser His Met Asn Val Thr Gly Pro Gln Ile Arg  
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 Asp Gly Gly Val Tyr Arg Cys Thr Ala Arg Asn Leu Val Gly Ser Ala  
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 Glu Tyr Gln Ala Arg Ile Asn Val Arg Gly Pro Pro Ser Ile Arg Ala  
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 Met Arg Asn Ile Thr Ala Val Ala Gly Arg Asp Thr Leu Ile Asn Cys  
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 Arg Val Ile Gly Tyr Pro Tyr Tyr Ser Ile Lys Trp Tyr Lys Asp Ala  
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 Leu Lys Leu Thr Asp Val Gln Lys Gly Met Asp Glu Gly Glu Tyr Leu  
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 Cys Ser Val Leu Ile Gln Pro Gln Leu Ser Ile Ser Gln Ser Val His  
 465 470 475 480  
 Val Ala Val Lys Val Pro Pro Leu Ile Gln Pro Phe Glu Phe Pro Pro  
 485 490 495  
 Ala Ser Ile Gly Gln Leu Leu Tyr Ile Pro Cys Val Val Ser Ser Gly  
 500 505 510

569



Arg Asn Ile Ser Pro Thr Ile Asn Gln Ala Asn Ile Val Asp Leu His  
 820 825 830  
 Pro Ala Ser Val Tyr Ser Ile Arg Met Tyr Ser Phe Asn Lys Ile Gly  
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 Arg Ser Glu Pro Ser Lys Glu Leu Thr Ile Ser Thr Glu Glu Ala Ser  
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 Asn Gly Val Ile Arg Gly Tyr Gln Ile Gly Tyr Arg Glu Asn Ser Pro  
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 Gly Ser Asn Gly Gln Tyr Ser Ile Val Glu Met Lys Ala Thr Gly Asp  
 915 920 925  
 Ser Glu Val Tyr Thr Leu Asp Asn Leu Lys Lys Phe Ala Gln Tyr Gly  
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 Val Val Val Gln Ala Phe Asn Arg Ala Gly Thr Gly Pro Ser Ser Ser  
 945 950 955 960  
 Glu Ile Asn Ala Thr Thr Leu Glu Asp Val Pro Ser Gln Pro Pro Glu  
 965 970 975  
 Asn Val Arg Ala Leu Ser Ile Thr Ser Asp Val Ala Val Ile Ser Trp  
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 Ser Glu Pro Pro Arg Ser Thr Leu Asn Gly Val Leu Lys Gly Tyr Arg  
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 Tyr Thr Ile Phe Cys Ser Ser Pro Ala Pro Gln Ala Pro Ser Glu Tyr  
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Glu Thr Ser Pro Glu Gln Leu Phe Tyr Arg Ile Ala His Leu Asn Arg  
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 Gly Gln Gln Tyr Leu Leu Trp Val Ala Ala Val Thr Ser Ala Gly Arg  
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 Gly Asn Ser Ser Glu Lys Val Thr Ile Glu Pro Ala Gly Lys Ala Pro  
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 Ala Lys Ile Ile Ser Phe Gly Gly Thr Val Thr Thr Pro Trp Met Lys  
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 Asp Val Arg Leu Pro Cys Asn Ser Val Gly Asp Pro Ala Pro Ala Val  
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 Lys Trp Thr Lys Asp Ser Glu Asp Ser Ala Ile Pro Val Ser Met Asp  
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 Gly His Arg Leu Ile His Thr Asn Gly Thr Leu Leu Leu Arg Ala Val  
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 Lys Ala Glu Asp Ser Gly Tyr Tyr Thr Cys Thr Ala Thr Asn Thr Gly  
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 Gly Phe Asp Thr Ile Ile Val Asn Leu Leu Val Gln Val Pro Pro Asp  
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 Gln Pro Arg Leu Thr Val Ser Lys Thr Ser Ala Ser Ser Ile Thr Leu  
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 Thr Trp Ile Pro Gly Asp Asn Gly Gly Ser Ser Ile Arg Gly Phe Val  
 285 290 295  
 Leu Gln Tyr Ser Val Asp Asn Ser Glu Glu Trp Lys Asp Val Phe Ile  
 300 305 310  
 Ser Ser Ser Glu Arg Ser Phe Lys Leu Asp Ser Leu Lys Cys Gly Thr  
 315 320 325  
 Trp Tyr Lys Val Lys Leu Ala Lys Asn Ser Val Gly Ser Gly Arg  
 330 335 340  
 Ile Ser Glu Ile Ile Glu Ala Lys Thr His Gly Arg Glu Pro Ser Phe  
 345 350 355 360  
 Ser Lys Asp Gln His Leu Phe Thr His Ile Asn Ser Thr His Ala Arg  
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 Leu Asn Leu Gln Gly Trp Asn Asn Gly Gly Cys Pro Ile Thr Ala Ile  
 380 385 390  
 Val Leu Glu Tyr Arg Pro Lys Gly Thr Trp Ala Trp Gln Gly Leu Arg  
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 Ala Asn Ser Ser Gly Glu Val Phe Leu Thr Glu Leu Arg Glu Ala Thr  
 410 415 420

Trp Tyr Glu Leu Arg Met Arg Ala Cys Asn Ser Ala Gly Cys Gly Asn  
 425 430 435 440  
 Glu Thr Ala Gln Phe Ala Thr Leu Asp Tyr Asp Gly Ser Thr Ile Pro  
 445 450 455  
 Pro Ile Lys Ser Ala Gln Gly Glu Gly Asp Asp Val Lys Lys Leu Phe  
 460 465 470  
 Thr Ile Gly Cys Pro Val Ile Leu Ala Thr Leu Gly Val Ala Leu Leu  
 475 480 485  
 Phe Ile Val Arg Lys Lys Arg Lys Glu Lys Arg Leu Lys Arg Leu Arg  
 490 495 500  
 Asp Ala Lys Ser Leu Ala Glu Met Leu Ile Ser Lys Asn Asn Arg Ser  
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 Phe Asp Thr Pro Val Lys Gly Pro Pro Gln Gly Pro Arg Leu His Ile  
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 Asp Ile Pro Arg Val Gln Leu Leu Ile Glu Asp Lys Glu Gly Ile Lys  
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 Gln Leu Gly Glu Asp Lys Ala Thr Ile Pro Val Thr Asp Ala Glu Phe  
 555 560 565  
 Ser Gln Ala Val Asn Pro Gln Ser Phe Cys Thr Gly Val Ser Leu His  
 570 575 580  
 His Pro Thr Leu Ile Gln Ser Thr Gly Pro Leu Ile Asp Met Ser Asp  
 585 590 595 600  
 Ile Arg Pro Gly Thr Asp Pro Val Ser Arg Lys Asn Val Lys Ser Ala  
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 His Ser Thr Arg Asn Arg Tyr Ser Ser Gln Trp Thr Leu Thr Lys Cys  
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 Gln Ala Ser Thr Pro Ala Arg Thr Leu Thr Ser Asp Trp Arg Thr Val  
 635 640 645  
 Gly Ser Gln His Gly Val Thr Val Thr Glu Ser Asp Ser Tyr Ser Ala  
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 Ser Leu Ser Gln Asp Thr Asp Lys Gly Arg Asn Ser Met Val Ser Thr  
 665 670 675 680  
 Glu Ser Ala Ser Ser Thr Tyr Glu Glu Leu Ala Arg Ala Tyr Glu His  
 685 690 695  
 Ala Lys Leu Glu Glu Gln Leu Gln His Ala Lys Phe Glu Ile Thr Glu  
 700 705 710  
 Cys Phe Ile Ser Asp Ser Ser Ser Asp Gln Met Thr Thr Gly Thr Asn  
 715 720 725

Glu Asn Ala Asp Ser Met Thr Ser Met Ser Thr Pro Ser Glu Pro Gly  
 730 735 740  
 Ile Cys Arg Phe Thr Ala Ser Pro Pro Lys Pro Gln Asp Ala Asp Arg  
 745 750 755 760  
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 Val Val Ala Tyr Val Arg Ile Ser Phe Leu Leu Asn Lys Gly Gly Gly  
 780 785 790  
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 795 800 805  
 Ser Arg Gly Thr Arg Pro Pro Thr Leu Val Ala Leu Thr Pro Ser Ser  
 810 815 820  
 Ser Thr Cys Glu Ala Gly Asp Pro Arg Trp Gly Gln Gly Trp Arg Lys  
 825 830 835 840  
 Gly Arg Asp Ser Ile Met Arg Glu Gly His Arg Met Glu Glu Ala Lys  
 845 850 855  
 Pro Arg Glu Arg Gln Thr Ser Gly Glu Thr Glu Val His Met Glu Gly  
 860 865 870  
 Glu Ala Gly Glu Leu Gly Ser Gly Ser Gly Ser Glu Gly Val Gly Glu  
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 His Thr Tyr Pro Pro His Thr Tyr Pro Pro His Thr Tyr Leu Pro Cys  
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ctg ccc tgt cca tac ctg ccc cct aca tac ctg ccc cgt cca tac ctg 142  
 Pro Tyr Leu Pro Pro Thr Tyr Leu Pro Arg Pro Tyr Leu Pro Pro Thr  
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ccc cct aca tac ctg ccc cgt cca tac ctg ccc cct aca tac ctg ctc Tyr Leu Pro Arg Pro Tyr Leu Pro Pro Thr Tyr Leu Leu Cys Leu Tyr 50 55 60	190
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gcg ccg atg ctg ctc gtg gcc ctg gtg ctc ggc gcc tac tgc ctc tgc Leu Leu Val Ala Leu Val Leu Gly Ala Tyr Cys Leu Cys Ala Leu Pro 100 105 110	334
gcc ctc ccc ggc cgc tgc ccg ccg gcc gcc cgc gcc ccc gcg ccg gcc Gly Arg Cys Pro Pro Ala Ala Arg Ala Pro Ala Pro Ala Pro Ala Pro 115 120 125	382
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ctc atc gtt ggc gtg aag aag ggc ggc acg cgc gcc ctg ctg gag ttt Gly Val Lys Lys Gly Gly Thr Arg Ala Leu Leu Glu Phe Leu Arg Leu 160 165 170 175	526
ctg ccg ctg cac ccc gac ctc cgc gcg ctg ggc tct gag ccc cac ttc His Pro Asp Arg Ala Leu Gly Ser Glu His Phe Phe Asp Arg 180 185 190	574
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ttc gtg acg cga gag gcc ccc cgc cgc atc cac gcc atg tcc ccg gac Arg Glu Ala Pro Arg Arg Ile His Ala Met Ser Pro Asp Thr Lys Leu 225 230 235	718
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gac tag gcc cag acg ctc tcc aag acc ccg ggc ctg ccc agc ttc cgc Gln Thr Leu Ser Lys Thr Pro Gly Leu Pro Ser Phe Arg Ala Leu Ala 260 265 270	814
gcc ctg gcc ttc cgc cac ggc ctg ggc ccc gtg gac aca gcc tgg agc	862

Phe Arg His Gly Leu Gly Pro Val Asp Thr Ala Trp Ser Ala Val Arg  
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 gcc gtc cgc atc ggc ctg tac gcc cag cac ctg gac cac tgg ctg cgc 910  
 Ile Gly Leu Tyr Ala Gln His Leu Asp His Trp Leu Arg Tyr Phe Pro  
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 Ala Gly Glu Val Gly Arg Val Gln Asp Phe Leu Gly Leu Lys Arg Val  
 320 325 330 335  
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 Val Thr Asp Lys His Phe Tyr Phe Asn Ala Thr Lys Gly Phe Pro Cys  
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 Leu Lys Lys Ala Gln Gly Gly Ser Arg Pro Arg Cys Leu Gly Lys Ser  
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 Lys Gly Arg Pro His Pro Arg Val Pro Gln Ala Val Arg Arg Leu  
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 Gln Glu Phe Tyr Arg Pro Phe Asn Arg Arg Phe Tyr Gln Met Thr Gly  
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Trp Leu Gly Leu Trp Pro Cys Phe Leu Ala Ala Gln Ser Leu Pro Pro  
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 Pro Leu Gln Ser Gly Gly Gly Ser Arg Ala Ser Arg Ala Pro Met Leu  
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 Arg Cys Pro Pro Ala Ala Arg Ala Pro Ala Pro Ala Pro Ser  
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 Glu Pro Ser Ser Ser Val His Arg Pro Gly Ala Pro Gly Leu Pro Leu  
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 Val Lys Lys Gly Gly Thr Arg Ala Leu Leu Glu Phe Leu Arg Leu His  
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 Pro Asp Arg Ala Leu Gly Ser Glu His Phe Phe Asp Arg Cys  
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 Gly Leu Trp Arg Ser Leu Met Pro Arg Thr Leu  
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 Asp Gly Gln Ile Thr Met Glu Thr Pro Tyr Phe Val Thr Arg  
 210 215 220  
 Glu Ala Pro Arg Arg Ile His Ala Met Ser Pro Asp Thr Lys Leu Ile  
 225 230 235 240  
 Val Val Val Arg Asn Pro Val Thr Arg Ala Ile Ser Asp Gln  
 245 250 255  
 Thr Leu Ser Lys Thr Pro Gly Leu Pro Ser Phe Arg Ala Leu Ala Phe  
 260 265 270  
 Arg His Gly Leu Gly Pro Val Asp Thr Ala Trp Ser Ala Val Arg Ile  
 275 280 285  
 Gly Leu Tyr Ala Gln His Leu Asp His Trp Leu Arg Tyr Phe Pro Leu  
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 Ser His Phe Leu Phe Val Ser Gly Glu Arg Leu Val Ser Asp Pro Ala  
 305 310 315 320  
 Gly Glu Val Gly Arg Val Gln Asp Phe Leu Gly Leu Lys Arg Val Val  
 325 330 335  
 Thr Asp Lys His Phe Tyr Phe Asn Ala Thr Lys Gly Phe Pro Cys Leu  
 340 345 350  
 Lys Lys Ala Gln Gly Gly Ser Arg Pro Arg Cys Leu Gly Lys Ser Lys  
 355 360 365

Gly Arg Pro His Pro Arg Val Pro Gln Ala Val Arg Arg Leu Gln  
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 Met Gly Pro  
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 Asp Arg Ala Ala Pro Leu Arg Glu Pro Gly Pro Gly Ser Arg His His  
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 Arg Ala Arg Asp Arg Leu Ile His Phe Gly Ala Val Ser Thr Asp Val  
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 Ile Gln Glu Gln Gly Phe Pro Leu Asp Leu Gly Ala Ser Phe Thr Glu  
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 gat gct ccc cga ccc cca gtg cct ggt gag gag gga gaa ctg gtg tcc 345  
 Asp Ala Pro Arg Pro Pro Val Pro Gly Glu Glu Gly Glu Leu Val Ser  
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 Thr Asp Pro Arg Pro Ala Ser Tyr Ser Phe Cys Ser Gly Lys Gly Val  
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 Gly Ile Lys Gly Glu Thr Ser Thr Ala Thr Pro Arg Arg Ser Asp Leu  
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 Asp Leu Gly Tyr Glu Pro Glu Gly Ser Ala Ser Pro Thr Pro Pro Tyr  
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Leu Lys Trp Ala Glu Ser Leu His Ser Leu Leu Asp Asp Gln Asp Gly	
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ata agc ctg ttc agg act ttc ctg aag cag gag ggc tgt gcc gac ttg	585
Ile Ser Leu Phe Arg Thr Phe Leu Lys Gln Glu Gly Cys Ala Asp Leu	
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ctg gac ttc tgg ttt gcc tgc act ggc ttc agg aag ctg gag ccc tgt	633
Leu Asp Phe Trp Phe Ala Cys Thr Gly Phe Arg Lys Leu Glu Pro Cys	
165 170 175	
gac tcg aac gag gag aag agg ctg aag ctg gcg aga gcc atc tac cga	681
Asp Ser Asn Glu Glu Lys Arg Leu Lys Leu Ala Arg Ala Ile Tyr Arg	
180 185 190 195	
aag tac att ctt gat aac aat ggc atc gtg tcc cgg cag acc aag cca	729
Lys Tyr Ile Leu Asp Asn Asn Gly Ile Val Ser Arg Gln Thr Lys Pro	
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gcc acc aag agc ttc ata aag ggc tgc atc atg aag cag ctg atc gat	777
Ala Thr Lys Ser Phe Ile Lys Gly Cys Ile Met Lys Gln Leu Ile Asp	
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Pro Ala Met Phe Asp Gln Ala Gln Thr Glu Ile Gln Ala Thr Met Glu	
230 235 240	
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Glu Asn Thr Tyr Pro Ser Phe Leu Lys Ser Asp Ile Tyr Leu Glu Tyr	
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Thr Arg Thr Gly Ser Glu Ser Pro Lys Val Cys Ser Asp Gln Ser Ser	
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Gly Ser Gly Thr Gly Lys Gly Ile Ser Gly Tyr Leu Pro Thr Leu Asn	
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Glu Asp Glu Glu Trp Lys Cys Asp Gln Asp Met Asp Glu Asp Asp Gly	
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Arg Asp Ala Ala Pro Pro Gly Arg Leu Pro Gln Lys Leu Leu Leu Glu	
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Thr Ala Ala Pro Arg Val Ser Ser Ser Arg Arg Tyr Ser Glu Gly Arg	
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Glu Phe Arg Tyr Gly Ser Trp Arg Glu Pro Val Asn Pro Tyr Tyr Val	
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Asn Ala Gly Tyr Ala Leu Ala Pro Ala Thr Ser Ala Asn Asp Ser Glu	
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Gln Gln Ser Leu Ser Ser Asp Ala Asp Thr Leu Ser Leu Thr Asp Ser	
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Ser Val Asp Gly Ile Pro Pro Tyr Arg Ile Arg Lys Gln His Arg Arg	
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Glu Met Gln Glu Ser Val Gln Val Asn Gly Arg Val Pro Leu Pro His	
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Ile Pro Arg Thr Tyr Arg Val Pro Lys Glu Val Arg Val Glu Pro Gln	
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Lys Phe Ala Glu Glu Leu Ile His Arg Leu Glu Ala Val Gln Arg Thr	
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Arg Glu Ala Glu Glu Lys Leu Glu Glu Arg Leu Lys Arg Val Arg Met	
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Cys His Lys Leu Pro Pro Ala Pro Ala Trp His His Phe Pro Pro Arg	
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Leu Cys Trp Thr Trp Ala Cys Ala Gly Leu Arg Asp Ala His Glu Glu	
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Asn Pro Glu Ser Ile Leu Asp Glu His Val Gln Arg Val Leu Arg Thr	
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Pro Gly Arg Gln Ser Pro Gly Pro Gly His Arg Ser Pro Asp Ser Gly	
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His Val Ala Lys Met Pro Val Ala Leu Gly Gly Ala Ala Ser Gly His	
550 555 560	
ggg aag cac gta ccc aag tca ggg gcg aag ctg gac gcg gcc ggc ctg	1833
Gly Lys His Val Pro Lys Ser Gly Ala Lys Leu Asp Ala Ala Gly Leu	
565 570 575	
cac cac cac cga cac gtc cac cac cac gtc cac cac agc aca gcc cgg	1881

His His His Arg His Val His His His Val His His Ser Thr Ala Arg	
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Pro Lys Glu Gln Val Glu Ala Glu Ala Thr Arg Arg Ala Gln Ser Ser	
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Phe Ala Trp Gly Leu Glu Pro His Ser His Gly Ala Arg Ser Arg Gly	
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tac tca gag agt gtt ggc gct gcc ccc aac gcc agt gat ggc ctc gcc	2025
Tyr Ser Glu Ser Val Gly Ala Ala Pro Asn Ala Ser Asp Gly Leu Ala	
630 635 640	
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His Ser Gly Lys Val Gly Val Ala Cys Lys Arg Asn Ala Lys Lys Ala	
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Glu Ser Gly Lys Ser Ala Ser Thr Glu Val Pro Gly Ala Ser Glu Asp	
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Lys Pro Gln Pro His Glu Asn Ser Arg Pro Leu Ser Leu Glu His Pro	
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Trp Ala Gly Pro Gln Leu Arg Thr Ser Val Gln Pro Ser His Leu Phe	
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Ile Gln Asp Pro Thr Met Pro Pro His Pro Ala Pro Asn Pro Leu Thr	
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Gln Leu Glu Glu Ala Arg Arg Arg Leu Glu Glu Glu Lys Arg Ala	
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agc cga gca ccc tcc aag cag agg tat gtg cag gag gtt atg cgg cgg	2457
Ser Arg Ala Pro Ser Lys Gln Arg Tyr Val Gln Glu Val Met Arg Arg	
775 780 785	
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Gly Arg Ala Cys Val Arg Pro Ala Cys Ala Pro Val Leu His Val Val	
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cca gcc gtg tcg gac atg gag ctc tcc gag aca gag aca aga tcg cag	2553
Pro Ala Val Ser Asp Met Glu Leu Ser Glu Thr Glu Thr Arg Ser Gln	

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Arg Lys Val Gly Gly Gly Ser Ala Gln Pro Cys Asp Ser Ile Val Val			
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gcg tac tac ttc tgc ggg gaa ccc atc ccc tac cgc acc ctg gtg agg			2649
Ala Tyr Tyr Phe Cys Gly Glu Pro Ile Pro Tyr Arg Thr Leu Val Arg			
	840	845 850	
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Gly Arg Ala Val Thr Leu Gly Gln Phe Lys Glu Leu Leu Thr Lys Lys			
	855	860 865	
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Gly Ser Tyr Arg Tyr Tyr Phe Lys Lys Val Ser Asp Glu Phe Asp Cys			
	870	875 880	
ggg gtg gtg ttt gag gag gtt cga gag gac gag gcc gtc ctg ccc gtc			2793
Gly Val Val Phe Glu Glu Val Arg Glu Asp Glu Ala Val Leu Pro Val			
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Phe Glu Glu Lys Ile Ile Gly Lys Val Glu Lys Val Asp			
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	35	40 45	
Lys Met Asn Ile Gln Glu Gln Gly Phe Pro Leu Asp Leu Gly Ala Ser			
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Phe Thr Glu Asp Ala Pro Arg Pro Pro Val Pro Gly Glu Glu Gly Glu			

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Leu Val Ser Thr Asp Pro Arg Pro Ala Ser Tyr Ser Phe Cys Ser Gly						
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Lys Gly Val Gly Ile Lys Gly Glu Thr Ser Thr Ala Thr Pro Arg Arg						
	100		105			110
Ser Asp Leu Asp Leu Gly Tyr Glu Pro Glu Gly Ser Ala Ser Pro Thr						
	115		120			125
Pro Pro Tyr Leu Lys Trp Ala Glu Ser Leu His Ser Leu Leu Asp Asp						
	130		135			140
Gln Asp Gly Ile Ser Leu Phe Arg Thr Phe Leu Lys Gln Glu Gly Cys						
	145		150		155	160
Ala Asp Leu Leu Asp Phe Trp Phe Ala Cys Thr Gly Phe Arg Lys Leu						
		165		170		175
Glu Pro Cys Asp Ser Asn Glu Glu Lys Arg Leu Lys Leu Ala Arg Ala						
		180		185		190
Ile Tyr Arg Lys Tyr Ile Leu Asp Asn Asn Gly Ile Val Ser Arg Gln						
	195		200			205
Thr Lys Pro Ala Thr Lys Ser Phe Ile Lys Gly Cys Ile Met Lys Gln						
	210		215			220
Leu Ile Asp Pro Ala Met Phe Asp Gln Ala Gln Thr Glu Ile Gln Ala						
	225		230		235	240
Thr Met Glu Glu Asn Thr Tyr Pro Ser Phe Leu Lys Ser Asp Ile Tyr						
		245		250		255
Leu Glu Tyr Thr Arg Thr Gly Ser Glu Ser Pro Lys Val Cys Ser Asp						
		260		265		270
Gln Ser Ser Gly Ser Gly Thr Gly Lys Gly Ile Ser Gly Tyr Leu Pro						
	275		280			285
Thr Leu Asn Glu Asp Glu Glu Trp Lys Cys Asp Gln Asp Met Asp Glu						
	290		295			300
Asp Asp Gly Arg Asp Ala Ala Pro Pro Gly Arg Leu Pro Gln Lys Leu						
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Leu Leu Glu Thr Ala Ala Pro Arg Val Ser Ser Ser Arg Arg Tyr Ser						
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Glu Gly Arg Glu Phe Arg Tyr Gly Ser Trp Arg Glu Pro Val Asn Pro						
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Tyr Tyr Val Asn Ala Gly Tyr Ala Leu Ala Pro Ala Thr Ser Ala Asn						
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Asp Ser Glu Gln Gln Ser Leu Ser Ser Asp Ala Asp Thr Leu Ser Leu						



675					680					685					
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Gly	Thr	Arg	Lys	Pro	Gln	Pro	His	Glu	Asn	Ser	Arg	Pro	Leu	Ser	Leu
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Glu	His	Pro	Trp	Ala	Gly	Pro	Gln	Leu	Arg	Thr	Ser	Val	Gln	Pro	Ser
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His	Leu	Phe	Ile	Gln	Asp	Pro	Thr	Met	Pro	Pro	His	Pro	Ala	Pro	Asn
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Pro	Leu	Thr	Gln	Leu	Glu	Glu	Ala	Arg	Arg	Arg	Leu	Glu	Glu	Glu	Glu
		755					760					765			
Lys	Arg	Ala	Ser	Arg	Ala	Pro	Ser	Lys	Gln	Arg	Tyr	Val	Gln	Glu	Val
	770					775					780				
Met	Arg	Arg	Gly	Arg	Ala	Cys	Val	Arg	Pro	Ala	Cys	Ala	Pro	Val	Leu
785					790					795					800
His	Val	Val	Pro	Ala	Val	Ser	Asp	Met	Glu	Leu	Ser	Glu	Thr	Glu	Thr
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Arg	Ser	Gln	Arg	Lys	Val	Gly	Gly	Gly	Ser	Ala	Gln	Pro	Cys	Asp	Ser
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Ile	Val	Val	Ala	Tyr	Tyr	Phe	Cys	Gly	Glu	Pro	Ile	Pro	Tyr	Arg	Thr
		835					840					845			
Leu	Val	Arg	Gly	Arg	Ala	Val	Thr	Leu	Gly	Gln	Phe	Lys	Glu	Leu	Leu
	850					855					860				
Thr	Lys	Lys	Gly	Ser	Tyr	Arg	Tyr	Tyr	Phe	Lys	Lys	Val	Ser	Asp	Glu
865					870					875					880
Phe	Asp	Cys	Gly	Val	Val	Phe	Glu	Glu	Val	Arg	Glu	Asp	Glu	Ala	Val
			885					890						895	
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<213> Homo sapiens

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<222>(70)..(2158)

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gga ggg gcg tac tgc ggg ggc tgg gag ggg gga aag gcc cat ggg cat	147
Gly Gly Ala Tyr Cys Gly Gly Trp Glu Gly Gly Lys Ala His Gly His	
15 20 25	
gga ctg tgc aca ggc ccc aag ggc cag ggc gaa tac tct ggc tcc tgg	195
Gly Leu Cys Thr Gly Pro Lys Gly Gln Gly Glu Tyr Ser Gly Ser Trp	
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aac ttt ggc ttt gag gtg gca ggt gtc tac acc tgg ccc agc gga aac	243
Asn Phe Gly Phe Glu Val Ala Gly Val Tyr Thr Trp Pro Ser Gly Asn	
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acc ttt gag gga tac tgg agc cag ggc aaa cgg cat ggg ctg ggc ata	291
Thr Phe Glu Gly Tyr Trp Ser Gln Gly Lys Arg His Gly Leu Gly Ile	
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gag acc aag ggg cgc tgg ctc tac aag ggc gag tgg aca cat ggc ttc	339
Glu Thr Lys Gly Arg Trp Leu Tyr Lys Gly Glu Trp Thr His Gly Phe	
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aag gga cgc tac gga atc cgg cag agc tca agc agc ggt gcc aag tat	387
Lys Gly Arg Tyr Gly Ile Arg Gln Ser Ser Ser Ser Gly Ala Lys Tyr	
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gag ggc acc tgg aac aat ggc ctg caa gac ggc tat ggc acc gag acc	435
Glu Gly Thr Trp Asn Asn Gly Leu Gln Asp Gly Tyr Gly Thr Glu Thr	
110 115 120	
tat gct gat gga ggg acg tac caa ggc cag ttc acc aac ggc atg cgc	483
Tyr Ala Asp Gly Gly Thr Tyr Gln Gly Gln Phe Thr Asn Gly Met Arg	
125 130 135	
cat ggc tac gga gta cgc cag agc gtg ccc tac ggg atg gcc gtg gtg	531
His Gly Tyr Gly Val Arg Gln Ser Val Pro Tyr Gly Met Ala Val Val	
140 145 150	
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Val Arg Ser Pro Leu Arg Thr Ser Leu Ser Ser Leu Arg Ser Glu His	
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Ser Asn Gly Thr Val Ala Pro Asp Ser Pro Ala Ser Pro Ala Ser Asp	
175 180 185	
ggc ccc gcg ctg ccc tcg ccc gcc atc ccg cgt ggc ggc ttc gcg ctc	675
Gly Pro Ala Leu Pro Ser Pro Ala Ile Pro Arg Gly Gly Phe Ala Leu	
190 195 200	
agc ctc ctg gcc aat gcc gag gcg gcc gcg cgg gcg ccc aag ggc ggc	723
Ser Leu Leu Ala Asn Ala Glu Ala Ala Arg Ala Pro Lys Gly Gly	
205 210 215	
ggc ctc ttc cag cgg ggc gcg ctg ctg ggc aag ctg cgg cgc gca gag	771

Gly Leu Phe Gln Arg Gly Ala Leu Leu Gly Lys Leu Arg Arg Ala Glu	
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Ser Arg Thr Ser Val Gly Ser Gln Arg Ser Arg Val Ser Phe Leu Lys	
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Ser Asp Leu Ser Ser Gly Ala Ser Asp Ala Ala Ser Thr Ala Ser Leu	
255 260 265	
gga gag gcc gcc gag ggc gcc gac gag gcc gca ccc ttc gag gcc gat	915
Gly Glu Ala Ala Glu Gly Ala Asp Glu Ala Ala Pro Phe Glu Ala Asp	
270 275 280	
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Ile Asp Ala Thr Thr Thr Glu Thr Tyr Met Gly Glu Trp Lys Asn Asp	
285 290 295	
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Lys Arg Ser Gly Phe Gly Val Ser Glu Arg Ser Ser Gly Leu Arg Tyr	
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Glu Gly Glu Trp Leu Asp Asn Leu Arg His Gly Tyr Gly Cys Thr Thr	
315 320 325 330	
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Leu Pro Asp Gly His Arg Glu Glu Gly Lys Tyr Arg His Asn Val Leu	
335 340 345	
gtc aag gac acc aag cgc cgc atg ctg cag ctc aag agc aac aag gtc	1155
Val Lys Asp Thr Lys Arg Arg Met Leu Gln Leu Lys Ser Asn Lys Val	
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cgc cag aaa gtg gag cac agt gtg gag ggt gcc cag cgc gcc gct gct	1203
Arg Gln Lys Val Glu His Ser Val Glu Gly Ala Gln Arg Ala Ala Ala	
365 370 375	
atc gcg cgc cag aag gcc gag att gcc gcc tcc agg aca agc cac gcc	1251
Ile Ala Arg Gln Lys Ala Glu Ile Ala Ala Ser Arg Thr Ser His Ala	
380 385 390	
aag gcc aaa gct gag gca gcg gaa cag gcc gcc ctg gct gcc aac cag	1299
Lys Ala Lys Ala Glu Ala Ala Glu Gln Ala Ala Leu Ala Ala Asn Gln	
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gag tcc aac att gct cgc act ttg gcc agg gag ctg gct ccg gac ttc	1347
Glu Ser Asn Ile Ala Arg Thr Leu Ala Arg Glu Leu Ala Pro Asp Phe	
415 420 425	
tac cag cca ggt ccg gaa tat cag aag cgc cgg ctg ctg cag gag atc	1395
Tyr Gln Pro Gly Pro Glu Tyr Gln Lys Arg Arg Leu Leu Gln Glu Ile	
430 435 440	
ctg gag aac tcg gag agc ctg ctg gag ccc ccc gac cgg ggc gcc ggc	1443
Leu Glu Asn Ser Glu Ser Leu Leu Glu Pro Pro Asp Arg Gly Ala Gly	



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cgt gag acc cct cgg ccc gag ggt ggc tcc ccg tca ccg gcc ggg acg Arg Glu Thr Pro Arg Pro Glu Gly Gly Ser Pro Ser Pro Ala Gly Thr 475 480 485 490			1539
ccc ccg cag ccc aag cgg ccc agg ccc ggg gtg tcc aag gac ggc ctg Pro Pro Gln Pro Lys Arg Pro Arg Pro Gly Val Ser Lys Asp Gly Leu 495 500 505			1587
ctg agc cca ggc gcc tgg aac ggc gag ccc agc ggt gag ggc agc cgg Leu Ser Pro Gly Ala Trp Asn Gly Glu Pro Ser Gly Glu Gly Ser Arg 510 515 520			1635
tca gtc act ccg tcc gag ggc gcg ggc cgc cgc agc ccc gcg cgt cca Ser Val Thr Pro Ser Glu Gly Ala Gly Arg Arg Ser Pro Ala Arg Pro 525 530 535			1683
gcc acc gag cgc atg gcc atc gag gct ctg cag gca ccg cct gcg ccg Ala Thr Glu Arg Met Ala Ile Glu Ala Leu Gln Ala Pro Pro Ala Pro 540 545 550			1731
tcg cgg gag ccg gag gtg gcg ctt tac cag ggc tac cac agc tat gct Ser Arg Glu Pro Glu Val Ala Leu Tyr Gln Gly Tyr His Ser Tyr Ala 555 560 565 570			1779
gtg cgc acc acg ccg ccc gag ccc cca ccc ttt gag gac cag ccc gag Val Arg Thr Thr Pro Pro Glu Pro Pro Pro Phe Glu Asp Gln Pro Glu 575 580 585			1827
ccc gag gtc tcc ggg tcc gag tcc gcg ccc tcg tcc ccg gcc acc gcc Pro Glu Val Ser Gly Ser Glu Ser Ala Pro Ser Ser Pro Ala Thr Ala 590 595 600			1875
ccg ctg cag gcc ccc acg ctc cga ggc ccc gag cct gca cgc gag acc Pro Leu Gln Ala Pro Thr Leu Arg Gly Pro Glu Pro Ala Arg Glu Thr 605 610 615			1923
ccc gcc aag ctg gag ccc aag ccc atc atc ccc aaa gcc gag ccc agg Pro Ala Lys Leu Glu Pro Lys Pro Ile Ile Pro Lys Ala Glu Pro Arg 620 625 630			1971
gcc aag gcc cgc aag act gag gct cga ggg ctg acc aag gcg ggg gcc Ala Lys Ala Arg Lys Thr Glu Ala Arg Gly Leu Thr Lys Ala Gly Ala 635 640 645 650			2019
aag aag aag gcg cgg aag gag gcc gca ctg gcg gca gag gcg gag gtg Lys Lys Lys Ala Arg Lys Glu Ala Ala Leu Ala Ala Glu Ala Glu Val 655 660 665			2067
gag gtg gaa gag gtc ccc aac acc atc ctc atc tgc atg gtg atc ctg Glu Val Glu Glu Val Pro Asn Thr Ile Leu Ile Cys Met Val Ile Leu 670 675 680			2115

ctg aac atc ggc ctg gcc atc ctc ttt gtt cac ctc ctg acc 2157  
 Leu Asn Ile Gly Leu Ala Ile Leu Phe Val His Leu Leu Thr  
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 Lys Gly Gln Gly Glu Tyr Ser Gly Ser Trp Asn Phe Gly Phe Glu Val  
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 Ala Gly Val Tyr Thr Trp Pro Ser Gly Asn Thr Phe Glu Gly Tyr Trp  
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 Ser Gln Gly Lys Arg His Gly Leu Gly Ile Glu Thr Lys Gly Arg Trp  
       65                                70                                75                                80  
 Leu Tyr Lys Gly Glu Trp Thr His Gly Phe Lys Gly Arg Tyr Gly Ile  
                                 85                                90                                95  
 Arg Gln Ser Ser Ser Ser Gly Ala Lys Tyr Glu Gly Thr Trp Asn Asn  
                                 100                                105                                110  
 Gly Leu Gln Asp Gly Tyr Gly Thr Glu Thr Tyr Ala Asp Gly Gly Thr  
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 Tyr Gln Gly Gln Phe Thr Asn Gly Met Arg His Gly Tyr Gly Val Arg  
       130                                135                                140  
 Gln Ser Val Pro Tyr Gly Met Ala Val Val Val Arg Ser Pro Leu Arg  
       145                                150                                155                                160  
 Thr Ser Leu Ser Ser Leu Arg Ser Glu His Ser Asn Gly Thr Val Ala  
                                 165                                170                                175  
 Pro Asp Ser Pro Ala Ser Pro Ala Ser Asp Gly Pro Ala Leu Pro Ser  
                                 180                                185                                190  
 Pro Ala Ile Pro Arg Gly Gly Phe Ala Leu Ser Leu Leu Ala Asn Ala  
       195                                200                                205

Glu Ala Ala Ala Arg Ala Pro Lys Gly Gly Gly Leu Phe Gln Arg Gly  
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 Ala Leu Leu Gly Lys Leu Arg Arg Ala Glu Ser Arg Thr Ser Val Gly  
 225 230 235 240  
 Ser Gln Arg Ser Arg Val Ser Phe Leu Lys Ser Asp Leu Ser Ser Gly  
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 Ala Ser Asp Ala Ala Ser Thr Ala Ser Leu Gly Glu Ala Ala Glu Gly  
 260 265 270  
 Ala Asp Glu Ala Ala Pro Phe Glu Ala Asp Ile Asp Ala Thr Thr Thr  
 275 280 285  
 Glu Thr Tyr Met Gly Glu Trp Lys Asn Asp Lys Arg Ser Gly Phe Gly  
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 Val Ser Glu Arg Ser Ser Gly Leu Arg Tyr Glu Gly Glu Trp Leu Asp  
 305 310 315 320  
 Asn Leu Arg His Gly Tyr Gly Cys Thr Thr Leu Pro Asp Gly His Arg  
 325 330 335  
 Glu Glu Gly Lys Tyr Arg His Asn Val Leu Val Lys Asp Thr Lys Arg  
 340 345 350  
 Arg Met Leu Gln Leu Lys Ser Asn Lys Val Arg Gln Lys Val Glu His  
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 Ser Val Glu Gly Ala Gln Arg Ala Ala Ala Ile Ala Arg Gln Lys Ala  
 370 375 380  
 Glu Ile Ala Ala Ser Arg Thr Ser His Ala Lys Ala Lys Ala Glu Ala  
 385 390 395 400  
 Ala Glu Gln Ala Ala Leu Ala Ala Asn Gln Glu Ser Asn Ile Ala Arg  
 405 410 415  
 Thr Leu Ala Arg Glu Leu Ala Pro Asp Phe Tyr Gln Pro Gly Pro Glu  
 420 425 430  
 Tyr Gln Lys Arg Arg Leu Leu Gln Glu Ile Leu Glu Asn Ser Glu Ser  
 435 440 445  
 Leu Leu Glu Pro Pro Asp Arg Gly Ala Gly Ala Ala Gly Leu Pro Gln  
 450 455 460  
 Pro Pro Arg Glu Ser Pro Gln Leu His Glu Arg Glu Thr Pro Arg Pro  
 465 470 475 480  
 Glu Gly Gly Ser Pro Ser Pro Ala Gly Thr Pro Pro Gln Pro Lys Arg  
 485 490 495  
 Pro Arg Pro Gly Val Ser Lys Asp Gly Leu Leu Ser Pro Gly Ala Trp  
 500 505 510

Asn Gly Glu Pro Ser Gly Glu Gly Ser Arg Ser Val Thr Pro Ser Glu  
 515 520 525  
 Gly Ala Gly Arg Arg Ser Pro Ala Arg Pro Ala Thr Glu Arg Met Ala  
 530 535 540  
 Ile Glu Ala Leu Gln Ala Pro Pro Ala Pro Ser Arg Glu Pro Glu Val  
 545 550 555 560  
 Ala Leu Tyr Gln Gly Tyr His Ser Tyr Ala Val Arg Thr Thr Pro Pro  
 565 570 575  
 Glu Pro Pro Pro Phe Glu Asp Gln Pro Glu Pro Glu Val Ser Gly Ser  
 580 585 590  
 Glu Ser Ala Pro Ser Ser Pro Ala Thr Ala Pro Leu Gln Ala Pro Thr  
 595 600 605  
 Leu Arg Gly Pro Glu Pro Ala Arg Glu Thr Pro Ala Lys Leu Glu Pro  
 610 615 620  
 Lys Pro Ile Ile Pro Lys Ala Glu Pro Arg Ala Lys Ala Arg Lys Thr  
 625 630 635 640  
 Glu Ala Arg Gly Leu Thr Lys Ala Gly Ala Lys Lys Lys Ala Arg Lys  
 645 650 655  
 Glu Ala Ala Leu Ala Ala Glu Ala Glu Val Glu Val Glu Glu Val Pro  
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<221> CDS

<222>(17)..(3152)

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 Gly Ala Ala Asp Gly His Gly Ser Ser Cys Gln Met Leu Leu Asn Gln  
 15 20 25  
 ctg aga gaa atc aca ggc att cag gac cct tcc ttt ctc cat gaa gct 145  
 Leu Arg Glu Ile Thr Gly Ile Gln Asp Pro Ser Phe Leu His Glu Ala  
 30 35 40

ctg aag gcc agt aat ggt gac att act cag gca gtc agc ctt ctc act	193
Leu Lys Ala Ser Asn Gly Asp Ile Thr Gln Ala Val Ser Leu Leu Thr	
45 50 55	
gat gag aga gtt aag gag ccc agt caa gac act gtt gct aca gaa cca	241
Asp Glu Arg Val Lys Glu Pro Ser Gln Asp Thr Val Ala Thr Glu Pro	
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Ser Glu Val Glu Gly Ser Ala Ala Asn Lys Glu Val Leu Ala Lys Val	
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Ile Asp Leu Thr His Asp Asn Lys Asp Asp Leu Gln Ala Ala Ile Ala	
95 100 105	
ttg agt cta ctg gag tct ccc aaa att caa gct gat gga aga gat ctt	385
Leu Ser Leu Leu Glu Ser Pro Lys Ile Gln Ala Asp Gly Arg Asp Leu	
110 115 120	
aac agg atg cat gaa gca acc tct gca gaa act aaa cgc tca aag aga	433
Asn Arg Met His Glu Ala Thr Ser Ala Glu Thr Lys Arg Ser Lys Arg	
125 130 135	
aaa cgc tgt gaa gtc tgg gga gaa aac ccc aat ccc aat gac tgg agg	481
Lys Arg Cys Glu Val Trp Gly Glu Asn Pro Asn Pro Asn Asp Trp Arg	
140 145 150 155	
aga gtt gat ggt tgg cca gtt ggg ctg aaa aat gtt ggc aat aca tgt	529
Arg Val Asp Gly Trp Pro Val Gly Leu Lys Asn Val Gly Asn Thr Cys	
160 165 170	
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Trp Phe Ser Ala Val Ile Gln Ser Leu Phe Gln Leu Pro Glu Phe Arg	
175 180 185	
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Arg Leu Val Leu Ser Tyr Ser Leu Pro Gln Asn Val Leu Glu Asn Cys	
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cga agt cat aca gaa aag aga aat atc atg ttt atg caa gag ctt cag	673
Arg Ser His Thr Glu Lys Arg Asn Ile Met Phe Met Gln Glu Leu Gln	
205 210 215	
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Tyr Leu Phe Ala Leu Met Met Gly Ser Asn Arg Lys Phe Val Asp Pro	
220 225 230 235	
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Ser Ala Ala Leu Asp Leu Leu Lys Gly Ala Phe Arg Ser Ser Glu Glu	
240 245 250	
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Gln Gln Gln Asp Val Ser Glu Phe Thr His Lys Leu Leu Asp Trp Leu	
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Glu Asp Ala Phe Gln Leu Ala Val Asn Val Asn Ser Pro Arg Asn Lys	
270 275 280	
tct gaa aat cca atg gtg cag ctg ttc tat ggt act ttc ctg act gaa	913
Ser Glu Asn Pro Met Val Gln Leu Phe Tyr Gly Thr Phe Leu Thr Glu	
285 290 295	
ggg gtt cgt gaa gga aaa ccc ttt tgt aac aat gag acc ttc ggc cag	961
Gly Val Arg Glu Gly Lys Pro Phe Cys Asn Asn Glu Thr Phe Gly Gln	
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Tyr Pro Leu Gln Val Asn Gly Tyr Arg Asn Leu Asp Glu Cys Leu Glu	
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Gly Ala Met Val Glu Gly Asp Val Glu Leu Leu Pro Ser Asp His Ser	
335 340 345	
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Thr Phe Glu Leu Ser Arg Phe Glu Phe Asn Gln Ser Leu Gly Gln Pro	
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Arg Tyr Met Tyr Arg Ser Lys Glu Leu Ile Arg Asn Lys Arg Glu Cys	
400 405 410	
att cga aag ttg aag gag gaa ata aaa att ctg cag caa aaa ttg gaa	1297
Ile Arg Lys Leu Lys Glu Glu Ile Lys Ile Leu Gln Gln Lys Leu Glu	
415 420 425	
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Arg Tyr Val Lys Tyr Gly Ser Gly Pro Ala Arg Phe Pro Leu Pro Asp	
430 435 440	
atg ctg aaa tat gtt att gaa ttt gct agt aca aaa cct gcc tca gaa	1393
Met Leu Lys Tyr Val Ile Glu Phe Ala Ser Thr Lys Pro Ala Ser Glu	
445 450 455	
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Ser Cys Pro Pro Glu Ser Asp Thr His Met Thr Leu Pro Leu Ser Ser	
460 465 470 475	
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Val His Cys Ser Val Ser Asp Gln Thr Ser Lys Glu Ser Thr Ser Thr	
480 485 490	
gaa agc tct tct cag gat gtt gaa agt acc ttt tct tct cct gaa gat	1537

Glu	Ser	Ser	Ser	Gln	Asp	Val	Glu	Ser	Thr	Phe	Ser	Ser	Pro	Glu	Asp		
			495					500					505				
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Ser	Leu	Pro	Lys	Ser	Lys	Pro	Leu	Thr	Ser	Ser	Arg	Ser	Ser	Met	Glu		
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atg	cct	tca	cag	cca	gct	cca	cga	aca	gtc	aca	gat	gag	gag	ata	aat	1633	
Met	Pro	Ser	Gln	Pro	Ala	Pro	Arg	Thr	Val	Thr	Asp	Glu	Glu	Ile	Asn		
		525				530					535						
ttt	ggt	aag	acc	tgt	ctt	cag	aga	tgg	agg	agt	gag	att	gaa	caa	gat	1681	
Phe	Val	Lys	Thr	Cys	Leu	Gln	Arg	Trp	Arg	Ser	Glu	Ile	Glu	Gln	Asp		
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ata	caa	gat	tta	aag	act	tgt	att	gca	agt	act	act	cag	act	att	gaa	1729	
Ile	Gln	Asp	Leu	Lys	Thr	Cys	Ile	Ala	Ser	Thr	Thr	Gln	Thr	Ile	Glu		
			560						565					570			
cag	atg	tac	tgc	gat	cct	ctc	ctt	cgt	cag	gtg	cct	tat	cgc	ttg	cat	1777	
Gln	Met	Tyr	Cys	Asp	Pro	Leu	Leu	Arg	Gln	Val	Pro	Tyr	Arg	Leu	His		
			575					580					585				
gca	gtt	ctt	gtt	cat	gaa	gga	caa	gca	aat	gct	gga	cac	tat	tgg	gcc	1825	
Ala	Val	Leu	Val	His	Glu	Gly	Gln	Ala	Asn	Ala	Gly	His	Tyr	Trp	Ala		
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Tyr	Ile	Tyr	Asn	Gln	Pro	Arg	Gln	Ser	Trp	Leu	Lys	Tyr	Asn	Asp	Ile		
	605					610					615						
tct	gtt	act	gaa	tct	tcc	tgg	gaa	gaa	gtt	gaa	aga	gat	tcc	tat	gga	1921	
Ser	Val	Thr	Glu	Ser	Ser	Trp	Glu	Glu	Val	Glu	Arg	Asp	Ser	Tyr	Gly		
	620					625				630					635		
ggc	ctg	aga	aat	gtt	agt	gct	tac	tgt	ctg	atg	tac	att	aat	gcc	aaa	1969	
Gly	Leu	Arg	Asn	Val	Ser	Ala	Tyr	Cys	Leu	Met	Tyr	Ile	Asn	Ala	Lys		
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cta	ccc	tac	ttc	aat	gca	gag	gca	gcc	cca	act	gaa	tca	gat	caa	atg	2017	
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Gln	Glu	Ala	Leu	Ser	Tyr	Leu	Val	Tyr	Ala	Tyr	Gln	Ser	Asn	Ala	Ala		
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 Ser Asp Thr His Met Thr Leu Pro Leu Ser Ser Val His Cys Ser Val  
 465 470 475 480  
 Ser Asn Gln Thr Ser Lys Glu Ser Thr Ser Thr Glu Ser Ser Ser Gln  
 485 490 495  
 Asp Val Glu Ser Thr Phe Ser Ser Pro Glu Asp Ser Leu Pro Lys Ser  
 500 505 510  
 Lys Pro Leu Thr Ser Ser Arg Ser Ser Met Glu Met Pro Ser Gln Pro  
 515 520 525  
 Ala Pro Arg Thr Val Thr Asp Glu Glu Ile Asn Phe Val Lys Thr Cys  
 530 535 540  
 Leu Gln Arg Trp Arg Ser Glu Ile Glu Gln Asp Ile Gln Asp Leu Lys  
 545 550 555 560

Thr Cys Ile Ala Ser Thr Thr Gln Thr Ile Glu Gln Met Tyr Cys Asp  
 565 570 575  
 Pro Leu Leu Arg Gln Val Pro Tyr Arg Leu His Ala Val Leu Val His  
 580 585 590  
 Glu Gly Gln Ala Asn Ala Gly His Tyr Trp Ala Tyr Ile Tyr Asn Gln  
 595 600 605  
 Pro Arg Gln Ser Trp Leu Lys Tyr Asn Asp Ile Ser Val Thr Glu Ser  
 610 615 620  
 Ser Trp Glu Glu Val Glu Arg Asp Ser Tyr Gly Gly Leu Arg Asn Val  
 625 630 635 640  
 Ser Ala Tyr Cys Leu Met Tyr Ile Asn Asp Lys Leu Pro Tyr Phe Asn  
 645 650 655  
 Ala Glu Ala Ala Pro Thr Glu Ser Asp Gln Met Ser Glu Val Glu Ala  
 660 665 670  
 Leu Ser Val Glu Leu Lys His Tyr Ile Gln Glu Asp Asn Trp Arg Phe  
 675 680 685  
 Glu Gln Glu Val Glu Glu Trp Glu Glu Glu Gln Ser Cys Lys Ile Pro  
 690 695 700  
 Gln Met Glu Ser Ser Thr Asn Ser Ser Ser Gln Asp Tyr Ser Thr Ser  
 705 710 715 720  
 Gln Glu Pro Ser Val Ala Ser Ser His Gly Val Arg Cys Leu Ser Ser  
 725 730 735  
 Glu His Ala Val Ile Val Lys Glu Gln Thr Ala Gln Ala Ile Ala Asn  
 740 745 750  
 Thr Ala Arg Ala Tyr Glu Lys Ser Gly Val Glu Ala Ala Leu Ser Glu  
 755 760 765  
 Ala Phe His Glu Glu Tyr Ser Arg Leu Tyr Gln Leu Ala Lys Glu Thr  
 770 775 780  
 Pro Thr Ser His Ser Asp Pro Arg Leu Gln His Val Leu Val Tyr Phe  
 785 790 795 800  
 Phe Gln Asn Glu Ala Pro Lys Arg Val Val Glu Arg Thr Leu Leu Glu  
 805 810 815  
 Gln Phe Ala Asp Lys Asn Leu Ser Tyr Asp Glu Arg Ser Ile Ser Ile  
 820 825 830  
 Met Lys Val Ala Gln Ala Lys Leu Lys Glu Ile Gly Pro Asp Asp Met  
 835 840 845  
 Asn Met Glu Glu Tyr Lys Lys Trp His Glu Asp Tyr Ser Leu Phe Arg  
 850 855 860

Lys Val Ser Val Tyr Leu Leu Thr Gly Leu Glu Leu Tyr Gln Lys Gly  
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 Lys Tyr Gln Glu Ala Leu Ser Tyr Leu Val Tyr Ala Tyr Gln Ser Asn  
 885 890 895  
 Ala Ala Leu Leu Met Lys Gly Pro Arg Arg Gly Val Lys Glu Ser Val  
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 Ile Ala Leu Tyr Arg Arg Lys Cys Leu Leu Glu Leu Asn Ala Lys Ala  
 915 920 925  
 Ala Ser Leu Phe Glu Thr Asn Asp Asp His Ser Val Thr Glu Gly Ile  
 930 935 940  
 Asn Val Met Asn Glu Leu Ile Ile Pro Cys Ile His Leu Ile Ile Asn  
 945 950 955 960  
 Asn Asp Ile Ser Lys Asp Asp Leu Asp Ala Ile Glu Val Met Arg Asn  
 965 970 975  
 His Trp Cys Ser Tyr Leu Gly Gln Asp Ile Ala Glu Asn Leu Gln Leu  
 980 985 990  
 Cys Leu Gly Glu Phe Leu Pro Arg Leu Leu Asp Pro Ser Ala Glu Ile  
 995 000 005  
 Ile Val Leu Lys Glu Pro Pro Thr Ile Arg Pro Asn Ser Pro Tyr Asp  
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 Thr Val Thr Val Lys  
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<221> CDS

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ggctgtgcgc cctgggcgtc atg atc ctt ctg cgg gcc tcc gaa gtg cgg	200
Met Ile Leu Leu Arg Ala Ser Glu Val Arg	
5 10	
cag ctg ctt cac aat aag ttc gtg gtc atc ctg ggg gac tct gtg cat	248
Gln Leu Leu His Asn Lys Phe Val Val Ile Leu Gly Asp Ser Val His	
15 20 25	
agg gca gta tac aag gac ctg gtg ctt ctg ctg cag aag gac cgc ctg	296
Arg Ala Val Tyr Lys Asp Leu Val Leu Leu Leu Gln Lys Asp Arg Leu	
30 35 40	
ctc act ccc ggg cag ctt aga gca agg ggg gag ctg aac ttc gaa caa	344
Leu Thr Pro Gly Gln Leu Arg Ala Arg Gly Glu Leu Asn Phe Glu Gln	
45 50 55	
gat gag ctg gtg gac gga ggc cag cgg ggc cac atg cac aac ggc ctt	392
Asp Glu Leu Val Asp Gly Gly Gln Arg Gly His Met His Asn Gly Leu	
60 65 70	
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Asn Tyr Arg Glu Val Arg Glu Phe Arg Ser Asp His His Leu Val Arg	
75 80 85 90	
ttt tac ttc ctc acc cgc gtg tac tcc gat tac ctc cag acc atc ttg	488
Phe Tyr Phe Leu Thr Arg Val Tyr Ser Asp Tyr Leu Gln Thr Ile Leu	
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aaa gag ctg cag tgc ggc gag cac gcc ccc gac ctg gtc atc atg aat	536
Lys Glu Leu Gln Ser Gly Glu His Ala Pro Asp Leu Val Ile Met Asn	
110 115 120	
tcc tgc ctc tgg gac atc tcc agg tat ggt ccg aac tcc tgg aga agc	584
Ser Cys Leu Trp Asp Ile Ser Arg Tyr Gly Pro Asn Ser Trp Arg Ser	
125 130 135	
tac ctg gag aac ctg gag aac ctg ttc cag tgc ctg ggc cag gtg ctg	632
Tyr Leu Glu Asn Leu Glu Asn Leu Phe Gln Cys Leu Gly Gln Val Leu	
140 145 150	
ccc gag tct tgc ctc ctg gtg tgg aac acg gcc atg cct gtg ggc gag	680
Pro Glu Ser Cys Leu Leu Val Trp Asn Thr Ala Met Pro Val Gly Glu	
155 160 165 170	
gaa gtc acc ggg ggt ttt ctt ccg ccc aag ctc cgg cgg cag aag gcc	728
Glu Val Thr Gly Gly Phe Leu Pro Pro Lys Leu Arg Arg Gln Lys Ala	
175 180 185	
acc ttc ctg aaa aac gaa gtg gtc aaa gcc aac ttc cac agc gcc acc	776
Thr Phe Leu Lys Asn Glu Val Val Lys Ala Asn Phe His Ser Ala Thr	
190 195 200	
gag gca cgt aaa cat aac ttc gat gta ctg gac ttg cat ttc cac ttc	824
Glu Ala Arg Lys His Asn Phe Asp Val Leu Asp Leu His Phe His Phe	
205 210 215	
cgc cac gcg agg gag aac ctg cac tgg gac ggg gtg cac tgg aat gga	872

Arg His Ala Arg Glu Asn Leu His Trp Asp Gly Val His Trp Asn Gly	
220 225 230	
cgt gtg cac cgc tgc ctc tcc cag ctg ctg ctg gcc cac gtg gcc gac	920
Arg Val His Arg Cys Leu Ser Gln Leu Leu Leu Ala His Val Ala Asp	
235 240 245 250	
gcc tgg ggt gtg gag ctg ccc cac cgc cac ccc gtg ggc gag tgg atc	968
Ala Trp Gly Val Glu Leu Pro His Arg His Pro Val Gly Glu Trp Ile	
255 260 265	
aag aag aaa aaa cct ggc ccg aga gtc gaa ggg ccg ccc cag gcc aac	1016
Lys Lys Lys Lys Pro Gly Pro Arg Val Glu Gly Pro Pro Gln Ala Asn	
270 275 280	
aga aat cac ccg gcc tta cct ctg tcc cca ccc tta cct tcc ccc aca	1064
Arg Asn His Pro Ala Leu Pro Leu Ser Pro Pro Leu Pro Ser Pro Thr	
285 290 295	
tac cgc ccc ctg ctt ggg ttc cca ccc cag cgc ttg ccg ctg ctc ccg	1112
Tyr Arg Pro Leu Leu Gly Phe Pro Pro Gln Arg Leu Pro Leu Leu Pro	
300 305 310	
ctc ctg tcc cca cag cct cct cct ccc att ctc cat cac cag gga atg	1160
Leu Leu Ser Pro Gln Pro Pro Pro Pro Ile Leu His His Gln Gly Met	
315 320 325 330	
ccc cgg ttc cca cag ggt ccc cca gat gcc tgt ttt tcc tca gac cat	1208
Pro Arg Phe Pro Gln Gly Pro Pro Asp Ala Cys Phe Ser Ser Asp His	
335 340 345	
act ttc cag tcg gat caa ttc tat tgc cat tca gat gtc ccc tca tca	1256
Thr Phe Gln Ser Asp Gln Phe Tyr Cys His Ser Asp Val Pro Ser Ser	
350 355 360	
gcc cat gca ggt ttc ttc gtc gaa gac aat ttt atg gtt ggt cct cag	1304
Ala His Ala Gly Phe Phe Val Glu Asp Asn Phe Met Val Gly Pro Gln	
365 370 375	
ctg cct atg ccc ttc ttc ccc aca ccc cgt tat cag cgg cct gcc cca	1352
Leu Pro Met Pro Phe Phe Pro Thr Pro Arg Tyr Gln Arg Pro Ala Pro	
380 385 390	
gtg gta cat agg ggt ttt ggc agg tat cgt ccc cgt ggc ccc tat acg	1400
Val Val His Arg Gly Phe Gly Arg Tyr Arg Pro Arg Gly Pro Tyr Thr	
395 400 405 410	
ccc tgg gga cag cgg cct cga cct tca aag aga agg gcc cca gcc aat	1448
Pro Trp Gly Gln Arg Pro Arg Pro Ser Lys Arg Arg Ala Pro Ala Asn	
415 420 425	
cct gag cca agg cct caa tagacggacc taggccttat ttctctttaa	1496
Pro Glu Pro Arg Pro Gln	
430	
tgaacatgga ttggacagat ctgacacttc ctttccattg cttggcctga	1546

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<212>PRT

<213> Homo sapiens

<400>280

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Leu Val Leu Leu Leu Gln Lys Asp Arg Leu Leu Thr Pro Gly Gln Leu  
35 40 45

Arg Ala Arg Gly Glu Leu Asn Phe Glu Gln Asp Glu Leu Val Asp Gly  
50 55 60

Gly Gln Arg Gly His Met His Asn Gly Leu Asn Tyr Arg Glu Val Arg  
65 70 75 80

Glu Phe Arg Ser Asp His His Leu Val Arg Phe Tyr Phe Leu Thr Arg  
85 90 95

Val Tyr Ser Asp Tyr Leu Gln Thr Ile Leu Lys Glu Leu Gln Ser Gly  
100 105 110

Glu His Ala Pro Asp Leu Val Ile Met Asn Ser Cys Leu Trp Asp Ile  
115 120 125

Ser Arg Tyr Gly Pro Asn Ser Trp Arg Ser Tyr Leu Glu Asn Leu Glu  
130 135 140

Asn Leu Phe Gln Cys Leu Gly Gln Val Leu Pro Glu Ser Cys Leu Leu  
145 150 155 160

Val Trp Asn Thr Ala Met Pro Val Gly Glu Glu Val Thr Gly Gly Phe  
165 170 175

Leu Pro Pro Lys Leu Arg Arg Gln Lys Ala Thr Phe Leu Lys Asn Glu  
180 185 190

Val Val Lys Ala Asn Phe His Ser Ala Thr Glu Ala Arg Lys His Asn  
195 200 205

Phe Asp Val Leu Asp Leu His Phe His Phe Arg His Ala Arg Glu Asn  
210 215 220



Leu His Trp Asp Gly Val His Trp Asn Gly Arg Val His Arg Cys Leu  
 225 230 235 240  
 Ser Gln Leu Leu Leu Ala His Val Ala Asp Ala Trp Gly Val Glu Leu  
 245 250 255  
 Pro His Arg His Pro Val Gly Glu Trp Ile Lys Lys Lys Lys Pro Gly  
 260 265 270  
 Pro Arg Val Glu Gly Pro Pro Gln Ala Asn Arg Asn His Pro Ala Leu  
 275 280 285  
 Pro Leu Ser Pro Pro Leu Pro Ser Pro Thr Tyr Arg Pro Leu Leu Gly  
 290 295 300  
 Phe Pro Pro Gln Arg Leu Pro Leu Leu Pro Leu Leu Ser Pro Gln Pro  
 305 310 315 320  
 Pro Pro Pro Ile Leu His His Gln Gly Met Pro Arg Phe Pro Gln Gly  
 325 330 335  
 Pro Pro Asp Ala Cys Phe Ser Ser Asp His Thr Phe Gln Ser Asp Gln  
 340 345 350  
 Phe Tyr Cys His Ser Asp Val Pro Ser Ser Ala His Ala Gly Phe Phe  
 355 360 365  
 Val Glu Asp Asn Phe Met Val Gly Pro Gln Leu Pro Met Pro Phe Phe  
 370 375 380  
 Pro Thr Pro Arg Tyr Gln Arg Pro Ala Pro Val Val His Arg Gly Phe  
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 Met Ser

tcc tgc agc cgc gtg gcc ctg gta act ggg gct aac aaa ggc atc ggc	154
Ser Cys Ser Arg Val Ala Leu Val Thr Gly Ala Asn Lys Gly Ile Gly	
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ttt gcg atc acg cgt gac ctg tgt cgg aaa ttc tcc ggg gac gtg gtg	202
Phe Ala Ile Thr Arg Asp Leu Cys Arg Lys Phe Ser Gly Asp Val Val	
20 25 30	
ctc acg gcg cgg gac gag gcg cgg ggc cgc gcg gcg gtg cag cag ctg	250
Leu Thr Ala Arg Asp Glu Ala Arg Gly Arg Ala Ala Val Gln Gln Leu	
35 40 45 50	
cag gcg gag ggc ctg agc cca cgc ttc cac cag ctg gac atc gac gac	298
Gln Ala Glu Gly Leu Ser Pro Arg Phe His Gln Leu Asp Ile Asp Asp	
55 60 65	
ccg cag agc atc cgt gcg ctg cgc gac ttt ctg cgc aag gag tac ggg	346
Pro Gln Ser Ile Arg Ala Leu Arg Asp Phe Leu Arg Lys Glu Tyr Gly	
70 75 80	
gga ctt aac gtg ctg gtc aac aac gcg ggc atc gcc ttt aga agt act	394
Gly Leu Asn Val Leu Val Asn Asn Ala Gly Ile Ala Phe Arg Ser Thr	
85 90 95	
gat ctc acc cac ttt cac att cta aga gaa gct gca atg aaa act aac	442
Asp Leu Thr His Phe His Ile Leu Arg Glu Ala Ala Met Lys Thr Asn	
100 105 110	
ttt ttt ggt acc cag gcc gtc tgc aca gag cta ctc cct cta ata aaa	490
Phe Phe Gly Thr Gln Ala Val Cys Thr Glu Leu Leu Pro Leu Ile Lys	
115 120 125 130	
acc caa ggt aga gtg gtg aat ata tca agc cta ata agt cta gag gcc	538
Thr Gln Gly Arg Val Val Asn Ile Ser Ser Leu Ile Ser Leu Glu Ala	
135 140 145	
ctg aaa aac tgc agc ctg gag cta cag cag aag ttt cga agt gag acc	586
Leu Lys Asn Cys Ser Leu Glu Leu Gln Gln Lys Phe Arg Ser Glu Thr	
150 155 160	
atc aca gag gag gag ctg gtg ggg ctc atg aac aag ttt gtg gag gat	634
Ile Thr Glu Glu Glu Leu Val Gly Leu Met Asn Lys Phe Val Glu Asp	
165 170 175	
aca aag aaa gga gtc cat gca aaa gaa ggc tgg cct aat agt gca tac	682
Thr Lys Lys Gly Val His Ala Lys Glu Gly Trp Pro Asn Ser Ala Tyr	
180 185 190	
ggg gtg tct aag att gga gtg aca gtc ctg tcc aga atc ctt gcc agg	730
Gly Val Ser Lys Ile Gly Val Thr Val Leu Ser Arg Ile Leu Ala Arg	
195 200 205 210	
aaa ctc aat gag cag agg aga ggg gac aag atc ctt ctg aat gcc tgc	778
Lys Leu Asn Glu Gln Arg Arg Gly Asp Lys Ile Leu Leu Asn Ala Cys	
215 220 225	
tgc cct ggc tgg gtc aga acc gac atg gca gga cca caa gcc acc aaa	826

Cys Pro Gly Trp Val Arg Thr Asp Met Ala Gly Pro Gln Ala Thr Lys  
                   230                                  235                                  240

agc cca gaa gaa gga gca gag acc cct gtg tac ttg gcc ctt ttg cct   874  
 Ser Pro Glu Glu Gly Ala Glu Thr Pro Val Tyr Leu Ala Leu Leu Pro  
                   245                                  250                                  255

cca gat gca gag gga cct cat ggg cag ttt gtt caa gat aaa aaa gtg   922  
 Pro Asp Ala Glu Gly Pro His Gly Gln Phe Val Gln Asp Lys Lys Val  
                   260                                  265                                  270

gaa caa tgg tgaactcagc tctttgtaca gctcccatct gtagcctgtc   971  
 Glu Gln Trp  
 275

ctaaagggga   981

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 <213> Homo sapiens

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                   20                                  25                                  30

Val Val Leu Thr Ala Arg Asp Glu Ala Arg Gly Arg Ala Ala Val Gln  
                   35                                  40                                  45

Gln Leu Gln Ala Glu Gly Leu Ser Pro Arg Phe His Gln Leu Asp Ile  
                   50                                  55                                  60

Asp Asp Pro Gln Ser Ile Arg Ala Leu Arg Asp Phe Leu Arg Lys Glu  
                   65                                  70                                  75                                  80

Tyr Gly Gly Leu Asn Val Leu Val Asn Asn Ala Gly Ile Ala Phe Arg  
                   85                                  90                                  95

Ser Thr Asp Leu Thr His Phe His Ile Leu Arg Glu Ala Ala Met Lys  
                   100                                  105                                  110

Thr Asn Phe Phe Gly Thr Gln Ala Val Cys Thr Glu Leu Leu Pro Leu  
                   115                                  120                                  125

Ile Lys Thr Gln Gly Arg Val Val Asn Ile Ser Ser Leu Ile Ser Leu  
                   130                                  135                                  140

Glu Ala Leu Lys Asn Cys Ser Leu Glu Leu Gln Gln Lys Phe Arg Ser  
                   145                                  150                                  155                                  160

Glu Thr Ile Thr Glu Glu Glu Leu Val Gly Leu Met Asn Lys Phe Val  
                   165                                  170                                  175



90									95				100				
cgc	gtg	tgt	gct	gcc	tct	ctc	tat	gtc	ctg	ggc	act	gcc	acc	cgc	tgg	391	
Arg	Val	Cys	Ala	Ala	Ser	Leu	Tyr	Val	Leu	Gly	Thr	Ala	Thr	Arg	Trp		
			105					110					115				
ccc	ctg	gct	gtc	cgc	aag	tgg	acc	acc	acc	gcg	ctt	ggg	ctg	ttg	acc	439	
Pro	Leu	Ala	Val	Arg	Lys	Trp	Thr	Thr	Thr	Ala	Leu	Gly	Leu	Leu	Thr		
			120				125					130					
atc	ccc	atc	att	atc	cac	ccc	att	gac	agg	gat	cat	cca	ctc	tcc	agt	487	
Ile	Pro	Ile	Ile	Ile	His	Pro	Ile	Asp	Arg	Asp	His	Pro	Leu	Ser	Ser		
			135			140					145						
gat	gag	agt	gga	tca	tcc	agt	ctc	cag	cac	gaa	ggg	cca	ggg	gtc	cca	535	
Asp	Glu	Ser	Gly	Ser	Ser	Ser	Leu	Gln	His	Glu	Gly	Pro	Gly	Val	Pro		
					155					160					165		
cag	gtg	agt	gga	gcc	cca	gca	gcc	ccc	tca	gct	ctg	cgt	gcc	cat	gta	583	
Gln	Val	Ser	Gly	Ala	Pro	Ala	Ala	Pro	Ser	Ala	Leu	Arg	Ala	His	Val		
				170				175					180				
ctg	gtc	ttc	tcc	ctg	gct	cta	tac	tca	gtg	ttc	aag	ggg	ttg	gac	ggg	631	
Leu	Val	Phe	Ser	Leu	Ala	Leu	Tyr	Ser	Val	Phe	Lys	Gly	Leu	Asp	Gly		
			185				190						195				
gct	tgg	gcc	gcg	gag	ctg	cgc	ctg	gct	ttg	ctg	ctc	cac	aag	ggc	acc	679	
Ala	Trp	Ala	Ala	Glu	Leu	Arg	Leu	Ala	Leu	Leu	Leu	His	Lys	Gly	Thr		
			200				205					210					
gtg	gct	gtc	agc	ctg	tcc	ctg	caa	ctg	ctg	cag	agc	cac	gta	ggg	tta	727	
Val	Ala	Val	Ser	Leu	Ser	Leu	Gln	Leu	Leu	Gln	Ser	His	Val	Gly	Leu		
			215			220					225						
cag	gtg	gtg	gct	ggc	tgt	ggg	atc	cac	ttc	ttg	tgc	atg	aca	ctt	cta	775	
Gln	Val	Val	Ala	Gly	Cys	Gly	Ile	His	Phe	Leu	Cys	Met	Thr	Leu	Leu		
			230		235					240				245			
ggc	atc	cgg	ctg	ggt	gcg	gct	ctg	gca	cag	tca	gca	ggg	cct	ctg	cac	823	
Gly	Ile	Arg	Leu	Gly	Ala	Ala	Leu	Ala	Gln	Ser	Ala	Gly	Pro	Leu	His		
				250				255					260				
cag	ctg	gcc	cag	tct	gtg	cta	gag	ggc	atg	gtg	gct	ggc	acc	ttc	ctc	871	
Gln	Leu	Ala	Gln	Ser	Val	Leu	Glu	Gly	Met	Val	Ala	Gly	Thr	Phe	Leu		
			265				270					275					
tat	acc	acc	ttt	ctg	gaa	atc	ttt	cca	cag	gag	ctg	gcg	act	tct	gag	919	
Tyr	Thr	Thr	Phe	Leu	Glu	Ile	Phe	Pro	Gln	Glu	Leu	Ala	Thr	Ser	Glu		
			280				285					290					
caa	agg	atc	ctc	aag	gtc	att	ctg	ctc	cta	gaa	ggg	tgt	gcc	ctg	ctc	967	
Gln	Arg	Ile	Leu	Lys	Val	Ile	Leu	Leu	Leu	Glu	Gly	Cys	Ala	Leu	Leu		
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act	ggc	ctg	ctc	ttc	atc	cat	atc	tagggggcctt								1001	
Thr	Gly	Leu	Leu	Phe	Ile	His	Ile										
			310			315											

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<400>284

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Arg Ser Leu Val Pro Ala Ala Val Val Trp Leu Ser Tyr Gly Val Ala
      35              40              45

Ser Ser Tyr Val Leu Ala Asp Ala Ile Asp Lys Gly Lys Lys Ala Gly
      50              55              60

Glu Val Pro Ser Pro Glu Ala Gly Arg Ser Ala Arg Val Thr Val Ala
      65              70              75              80

Val Val Asp Thr Phe Val Trp Gln Ala Leu Ala Ser Val Ala Ile Pro
      85              90              95

Gly Phe Thr Ile Asn Arg Val Cys Ala Ala Ser Leu Tyr Val Leu Gly
      100             105             110

Thr Ala Thr Arg Trp Pro Leu Ala Val Arg Lys Trp Thr Thr Thr Ala
      115             120             125

Leu Gly Leu Leu Thr Ile Pro Ile Ile Ile His Pro Ile Asp Arg Asp
      130             135             140

His Pro Leu Ser Ser Asp Glu Ser Gly Ser Ser Ser Leu Gln His Glu
      145             150             155             160

Gly Pro Gly Val Pro Gln Val Ser Gly Ala Pro Ala Ala Pro Ser Ala
      165             170             175

Leu Arg Ala His Val Leu Val Phe Ser Leu Ala Leu Tyr Ser Val Phe
      180             185             190

Lys Gly Leu Asp Gly Ala Trp Ala Ala Glu Leu Arg Leu Ala Leu Leu
      195             200             205

Leu His Lys Gly Thr Val Ala Val Ser Leu Ser Leu Gln Leu Leu Gln
      210             215             220

Ser His Val Gly Leu Gln Val Val Ala Gly Cys Gly Ile His Phe Leu
      225             230             235             240

Cys Met Thr Leu Leu Gly Ile Arg Leu Gly Ala Ala Leu Ala Gln Ser
      245             250             255

Ala Gly Pro Leu His Gln Leu Ala Gln Ser Val Leu Glu Gly Met Val
      260             265             270

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115	120	125	130	
atg aaa cca cat ggt aga gtg gtg aac atc agc agt ctg cag ggg tta				538
Met Lys Pro His Gly Arg Val Val Asn Ile Ser Ser Leu Gln Gly Leu				
	135	140	145	
aaa gcc ctt gag aac tgc agg gaa gat ctt cag gaa aag ttc cga tgt				586
Lys Ala Leu Glu Asn Cys Arg Glu Asp Leu Gln Glu Lys Phe Arg Cys				
	150	155	160	
gac aca ctt acc gag gtg gac ctg gtc gac ctc atg aaa aag ttt gtg				634
Asp Thr Leu Thr Glu Val Asp Leu Val Asp Leu Met Lys Lys Phe Val				
	165	170	175	
gag gat aca aaa aat gaa gtc cat gag agg gaa ggt tgg cca gac tcg				682
Glu Asp Thr Lys Asn Glu Val His Glu Arg Glu Gly Trp Pro Asp Ser				
	180	185	190	
gct tac ggg gtg tcg aag ctg ggg gtg aca gtc ctt acg agg atc ctg				730
Ala Tyr Gly Val Ser Lys Leu Gly Val Thr Val Leu Thr Arg Ile Leu				
	195	200	205	210
gcc cgg cag ctg gat gaa aag agg aaa gcg gac agg att ctg ctc aat				778
Ala Arg Gln Leu Asp Glu Lys Arg Lys Ala Asp Arg Ile Leu Leu Asn				
	215	220	225	
gcc tgc tgc ccg gga tgg gtg aag acc gac atg gcg agg gac cag ggc				826
Ala Cys Cys Pro Gly Trp Val Lys Thr Asp Met Ala Arg Asp Gln Gly				
	230	235	240	
tcc cgg acc gtg gaa gag ggg gcc gaa acc ccc gtt tac ttg gct ctc				874
Ser Arg Thr Val Glu Glu Gly Ala Glu Thr Pro Val Tyr Leu Ala Leu				
	245	250	255	
ctg cct cca gat gcc act gaa cct cac ggc cag cta gtc cgt gac aaa				922
Leu Pro Pro Asp Ala Thr Glu Pro His Gly Gln Leu Val Arg Asp Lys				
	260	265	270	
gtt gtg caa act tgg tgaacgtctg ctctggggct taattgtttg ataaacgtta				977
Val Val Gln Thr Trp				
275				
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Val Val Leu Thr Ala Arg Asp Glu Ala Arg Gly Leu Ala Ala Val Gln  
           35                  40                  45  
 Lys Leu Gln Ala Glu Gly Leu Ile Pro Arg Phe His Gln Leu Asp Ile  
           50                  55                  60  
 Asn Asp Pro Gln Ser Ile His Ala Leu Arg Asn Phe Leu Leu Lys Glu  
           65                  70                  75                  80  
 Tyr Gly Gly Leu Asp Val Leu Val Asn Asn Ala Gly Ile Gly Val Leu  
                   85                  90                  95  
 Phe Lys Val Asp Asp Pro Thr Pro Phe Asp Ile Gln Ala Glu Val Thr  
                   100                  105                  110  
 Leu Lys Thr Asn Phe Phe Ala Thr Arg Asn Val Cys Thr Glu Leu Leu  
           115                  120                  125  
 Pro Ile Met Lys Pro His Gly Arg Val Val Asn Ile Ser Ser Leu Gln  
           130                  135                  140  
 Gly Leu Lys Ala Leu Glu Asn Cys Arg Glu Asp Leu Gln Glu Lys Phe  
           145                  150                  155                  160  
 Arg Cys Asp Thr Leu Thr Glu Val Asp Leu Val Asp Leu Met Lys Lys  
                   165                  170                  175  
 Phe Val Glu Asp Thr Lys Asn Glu Val His Glu Arg Glu Gly Trp Pro  
                   180                  185                  190  
 Asp Ser Ala Tyr Gly Val Ser Lys Leu Gly Val Thr Val Leu Thr Arg  
           195                  200                  205  
 Ile Leu Ala Arg Gln Leu Asp Glu Lys Arg Lys Ala Asp Arg Ile Leu  
           210                  215                  220  
 Leu Asn Ala Cys Cys Pro Gly Trp Val Lys Thr Asp Met Ala Arg Asp  
           225                  230                  235                  240  
 Gln Gly Ser Arg Thr Val Glu Glu Gly Ala Glu Thr Pro Val Tyr Leu  
                   245                  250                  255  
 Ala Leu Leu Pro Pro Asp Ala Thr Glu Pro His Gly Gln Leu Val Arg  
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Leu Val Ala Arg Ala Val Leu Gly Gly Leu Ser Gln Thr Asp Pro Arg	
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Ala Gly Gly Gly Gly Gly Gly Ala Val Leu Gly Gly Leu Ser Gln Thr	
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gac ccc agg gcc ggc ggc ggc ggc ggc ggc gac tac gga ctg gtg acg	195
Asp Pro Arg Ala Gly Gly Gly Gly Gly Gly Asp Tyr Gly Leu Val Thr	
45 50 55	
gcc ggc tgc ggc ttc ggg aag gac ttc cgt aag ggc ctc ctc aag aag	243
Ala Gly Cys Gly Phe Gly Lys Asp Phe Arg Lys Gly Leu Leu Lys Lys	
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Gly Ala Cys Tyr Gly Asp Asp Ala Cys Phe Val Ala Arg His Arg Ser	
75 80 85	
gcg gac gtg ctc ggt gtt gca gat ggt gta gga ggc tgg aga gac tat	339
Ala Asp Val Leu Gly Val Ala Asp Gly Val Gly Gly Trp Arg Asp Tyr	
90 95 100 105	
gga gtt gat cca tct caa ttc tca ggg act tta atg cgg acg tgt gaa	387
Gly Val Asp Pro Ser Gln Phe Ser Gly Thr Leu Met Arg Thr Cys Glu	
110 115 120	
cgt tta gta aaa gaa gga cgg ttc gta cct agt aat ccc att gga att	435
Arg Leu Val Lys Glu Gly Arg Phe Val Pro Ser Asn Pro Ile Gly Ile	
125 130 135	
ctc acc aca agc tac tgt gag ttg ctg caa aat aaa gtc cct ttg ctc	483
Leu Thr Thr Ser Tyr Cys Glu Leu Leu Gln Asn Lys Val Pro Leu Leu	
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Gly Ser Ser Thr Ala Cys Ile Val Val Leu Asp Arg Thr Ser His Arg	
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Leu His Thr Ala Asn Leu Gly Asp Ser Gly Phe Leu Val Val Arg Gly	
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Gly Glu Val Val His Arg Ser Asp Glu Gln Gln His Tyr Phe Asn Thr	
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cca ttc cag ctc tca atc gct ccc cct gaa gcc gag gga gtc gtc ttg	675
Pro Phe Gln Leu Ser Ile Ala Pro Pro Glu Ala Glu Gly Val Val Leu	
205 210 215	

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 Ser Asp Ser Pro Asp Ala Ala Asp Ser Thr Ser Phe Asp Val Gln Leu  
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 Gly Asp Ile Ile Leu Thr Ala Thr Asp Gly Leu Phe Asp Asn Met Pro  
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gat tat atg att ctt cag gag cta aaa aag tta aag aat tca aat tat 819  
 Asp Tyr Met Ile Leu Gln Glu Leu Lys Lys Leu Lys Asn Ser Asn Tyr  
 250 255 260 265

gag agt ata caa cag act gcc aga agc att gct gag caa gct cat gag 867  
 Glu Ser Ile Gln Gln Thr Ala Arg Ser Ile Ala Glu Gln Ala His Glu  
 270 275 280

ctg gcc tat gac cca aat tat atg tca cct ttt gca cag ttt gca tgt 915  
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 285 290 295

gac aat gga ttg aat gtg aga ggt ggt gga aag cca gat gac atc acc 963  
 Asp Asn Gly Leu Asn Val Arg Gly Gly Gly Lys Pro Asp Asp Ile Thr  
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gtc ctt ctt tca ata gtg gct gag tat aca gac tagctgaggt 1006  
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gtcaa 1011

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 35 40 45  
 Gly Gly Gly Asp Tyr Gly Leu Val Thr Ala Gly Cys Gly Phe Gly Lys  
 50 55 60  
 Asp Phe Arg Lys Gly Leu Leu Lys Lys Gly Ala Cys Tyr Gly Asp Asp  
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 Ala Cys Phe Val Ala Arg His Arg Ser Ala Asp Val Leu Gly Val Ala  
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 Asp Gly Val Gly Gly Trp Arg Asp Tyr Gly Val Asp Pro Ser Gln Phe

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Phe Val Pro Ser Asn Pro Ile Gly Ile Leu Thr Thr Ser Tyr Cys Glu		
130	135	140
Leu Leu Gln Asn Lys Val Pro Leu Leu Gly Ser Ser Thr Ala Cys Ile		
145	150	155
Val Val Leu Asp Arg Thr Ser His Arg Leu His Thr Ala Asn Leu Gly		
165	170	175
Asp Ser Gly Phe Leu Val Val Arg Gly Gly Glu Val Val His Arg Ser		
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Asp Glu Gln Gln His Tyr Phe Asn Thr Pro Phe Gln Leu Ser Ile Ala		
195	200	205
Pro Pro Glu Ala Glu Gly Val Val Leu Ser Asp Ser Pro Asp Ala Ala		
210	215	220
Asp Ser Thr Ser Phe Asp Val Gln Leu Gly Asp Ile Ile Leu Thr Ala		
225	230	235
Thr Asp Gly Leu Phe Asp Asn Met Pro Asp Tyr Met Ile Leu Gln Glu		
245	250	255
Leu Lys Lys Leu Lys Asn Ser Asn Tyr Glu Ser Ile Gln Gln Thr Ala		
260	265	270
Arg Ser Ile Ala Glu Gln Ala His Glu Leu Ala Tyr Asp Pro Asn Tyr		
275	280	285
Met Ser Pro Phe Ala Gln Phe Ala Cys Asp Asn Gly Leu Asn Val Arg		
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49

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5

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Ala Val Asp Ser Glu Pro Leu Asp His Val Ser Phe Glu Leu Phe Ala  
15 20 25

gaa aag ttt cca aag aca gca gaa aac gtt cgt gct ctg agc act gaa 145  
Glu Lys Phe Pro Lys Thr Ala Glu Asn Val Arg Ala Leu Ser Thr Glu  
30 35 40

gag aaa gga ttt ggt tat aag ggt ccc tgc ttt cac aga att ata cca 193  
Glu Lys Gly Phe Gly Tyr Lys Gly Pro Cys Phe His Arg Ile Ile Pro  
45 50 55

gca ttt atg tgt cag ggt ggt gac ttc acg cac cat aat ggc act ggt 241  
Ala Phe Met Cys Gln Gly Gly Asp Phe Thr His His Asn Gly Thr Gly  
60 65 70

ggc aag tcc atc tac ggg gag aaa ttt gaa gat gag aaa ttt atc cta 289  
Gly Lys Ser Ile Tyr Gly Glu Lys Phe Glu Asp Glu Lys Phe Ile Leu  
75 80 85 90

aag cgt aca ggt cct ggc atc ttg tcc atg gca aat tct gga ccc aac 337  
Lys Arg Thr Gly Pro Gly Ile Leu Ser Met Ala Asn Ser Gly Pro Asn  
95 100 105

aca aac tgt tcc gtt ttt ttc atc tgc act gcc aag acg ggg tgg ttg 385  
Thr Asn Cys Ser Val Phe Phe Ile Cys Thr Ala Lys Thr Gly Trp Leu  
110 115 120

gat ggc aag cat gta gtc ttt ggc aag gtg aaa gaa ggc atg aat att 433  
Asp Gly Lys His Val Val Phe Gly Lys Val Lys Glu Gly Met Asn Ile  
125 130 135

ttg gag gcc ata gag caa ttt ggg tcc agg aat ggc aag acc agc aag 481  
Leu Glu Ala Ile Glu Gln Phe Gly Ser Arg Asn Gly Lys Thr Ser Lys  
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Ala Glu Asn Val Arg Ala Leu Ser Thr Glu Glu Lys Gly Phe Gly Tyr  
35 40 45

Lys Gly Pro Cys Phe His Arg Ile Ile Pro Ala Phe Met Cys Gln Gly  
50 55 60

Gly Asp Phe Thr His His Asn Gly Thr Gly Gly Lys Ser Ile Tyr Gly  
 65 70 75 80  
 Glu Lys Phe Glu Asp Glu Lys Phe Ile Leu Lys Arg Thr Gly Pro Gly  
 85 90 95  
 Ile Leu Ser Met Ala Asn Ser Gly Pro Asn Thr Asn Cys Ser Val Phe  
 100 105 110  
 Phe Ile Cys Thr Ala Lys Thr Gly Trp Leu Asp Gly Lys His Val Val  
 115 120 125  
 Phe Gly Lys Val Lys Glu Gly Met Asn Ile Leu Glu Ala Ile Glu Gln  
 130 135 140  
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cgggagagac agctggggag agacatggca gggtcggagc gcggcctgcg	400
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gaggggcggg gctgacggct ctggtacccg gagtcggcgc gcggggcagg	500
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gagaccaccg aggcgggaga cagagcgcgg cgaagagcca ttgagtggtc	600
accagtagc cgccgccgcc gccgcctcgg gaagcttgcc acccgctagg	650
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aac cag cgg cgc tgg atc ttc cac acg gcg tcc aag ctc aat ctc cag Asn Gln Arg Arg Trp Ile Phe His Thr Ala Ser Lys Leu Asn Leu Gln 15 20 25 30	747
gtt ctg ctt tcg cac gtc ttg ggc aag gat gtc ccc cgc gat ggc aaa Val Leu Leu Ser His Val Leu Gly Lys Asp Val Pro Arg Asp Gly Lys 35 40 45	795
gcc gag ttc gct tgc agc aag tgt gct ttc atg ctt gat cga atc tat Ala Glu Phe Ala Cys Ser Lys Cys Ala Phe Met Leu Asp Arg Ile Tyr 50 55 60	843
cga ttc gac aca gtt att gcc cgg att gaa gcg ctt tct att gag cgc Arg Phe Asp Thr Val Ile Ala Arg Ile Glu Ala Leu Ser Ile Glu Arg 65 70 75	891
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ggg aat ggg acg gtt gac atg tcc gtc tta ccc gat gcg aga tac tct Gly Asn Gly Thr Val Asp Met Ser Val Leu Pro Asp Ala Arg Tyr Ser 115 120 125	1035

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 Phe Ala Tyr Ser Gly Phe Glu Cys Trp Val  
 135 140

gag gag cca cac agc tgc cat ggt tca gaa 1131  
 Gln Glu Pro His Ser Cys His Gly Ser Glu  
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cga ccc agg aga tgc cgt ggt tgt gcc gct ttg cgg 1179  
 Asn Arg Pro Arg Arg Cys Arg Gly Cys Ala Ala Leu Arg  
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gct gct gat tct gac tat gaa gcc att tgt aag gta cct cga aag gtg 1227  
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gcc aga agt atc tcc tgc gcc cct tct agc agg tgg tcg acc agc att 1275  
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 195 200 205

tgc act gaa gaa cca gcg ttg tct gag gtt ggg cca ccc gac tta gca 1323  
 Cys Thr Glu Glu Pro Ala Leu Ser Glu Val Gly Pro Pro Asp Leu Ala  
 210 215 220

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 Gly Ser Ser Val Glu Ser Leu Asp Ala Ser Val Gln Ala Ser Pro Pro  
 240 245 250

caa cag aaa gat gag gag act gag aga agt gca aag gaa ctt gga aag 1467  
 Gln Gln Lys Asp Glu Glu Thr Glu Arg Ser Ala Lys Glu Leu Gly Lys  
 255 260 265 270

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 275 280 285

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 Lys Leu Glu Leu Ala Leu Ser Met Ile Lys Gly Leu Asp Tyr Lys Pro  
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 Ile Gln Ser Pro Arg Gly Ser Arg Leu Pro Ile Pro Val Lys Ser Ser  
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 320 325 330

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 Gly Phe Leu Asn Arg Ser Leu Lys Pro Leu Tyr Lys Thr Pro Val Ser  
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360 365	
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rg Val Gln Pro Met Thr Glu Glu Leu Leu	
375 380	
cg aat tca cat gag acc act ata act cag cag tct	1851
er Leu Asn Ser His Glu Thr Thr Ile Thr Gln Gln Ser	
390 395	
cct gat tcc cac ttg gca gaa ctc cag gaa aaa atc cag caa aca	1899
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Glu Ala Thr Asn Lys Ile Leu Gln Glu Lys Leu Asn Glu Met Ser Tyr	
415 420 425 430	
gaa cta aag tgt gct cag gag tcg tct caa aag caa gat ggt aca att	1995
Glu Leu Lys Cys Ala Gln Glu Ser Ser Gln Lys Gln Asp Gly Thr Ile	
435 440 445	
cag aac ctc aag gaa act ctg aaa agc agg gaa cgt gag act gag gag	2043
Gln Asn Leu Lys Glu Thr Leu Lys Ser Arg Glu Arg Glu Thr Glu Glu	
450 455 460	
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Leu Tyr Gln Val Ile Glu Gly Gln Asn Asp Thr Met Ala Lys Leu Arg	
465 470 475	
gaa atg ctg cac caa agc cag ctt gga caa ctt cac agc tca gag ggt	2139
Glu Met Leu His Gln Ser Gln Leu Gly Gln Leu His Ser Ser Glu Gly	
480 485 490	
act tct cca gct cag caa cag gta gct ctg ctt gat ctt cag agt gct	2187
Thr Ser Pro Ala Gln Gln Gln Val Ala Leu Leu Asp Leu Gln Ser Ala	
495 500 505 510	
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Leu Phe Cys Ser Gln Leu Glu Ile Gln Lys Leu Gln Arg Val Val Arg	
515 520 525	
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Gln Lys Glu Arg Gln Leu Ala Asp Ala Lys Gln Cys Val Gln Phe Val	
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Glu Ala Ala Ala His Glu Ser Glu Gln Gln Lys Glu Ala Ser Trp Lys	
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cat aac cag gaa ttg cga aaa gcc ttg cag cag cta caa gaa gaa ttg	2379
His Asn Gln Glu Leu Arg Lys Ala Leu Gln Gln Leu Gln Glu Glu Leu	
560 565 570	
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		Gln	Glu	Gln	Asn	Ile	Gln	His	Leu	Asn	His	Ser	Leu	
	595						600					605		
		gag	gag	cag	ttg	ctt	cag	gaa	ttt	cgg	gag	ctc	cta	2523
		Lys	Glu	Gln	Leu	Leu	Gln	Glu	Phe	Arg	Glu	Leu	Leu	
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		Arg	Asp	Asn	Ser	Asp	Lys	Thr	Leu	Glu	Ala	Asn	Glu	
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		Lys	Leu	Arg	Gln	Arg	Ile	His	Asp	Lys	Ala	Val	Ala	
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		Ile	Asp	Glu	Lys	Phe	Ser	Ala	Leu	Glu	Glu	Lys	Glu	
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		Gln	Leu	Arg	Leu	Ala	Val	Arg	Glu	Arg	Asp	His	Asp	
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		cgc	gat	gtc	ctc	tcc	tcc	aat	gaa	gct	act	atg	caa	2763
		Arg	Asp	Val	Leu	Ser	Ser	Asn	Glu	Ala	Thr	Met	Gln	
	690											700		
		ctc	ctg	agg	gcc	aaa	ggc	ctg	gaa	gtg	gaa	cag	tta	2811
		Leu	Leu	Arg	Ala	Lys	Gly	Leu	Glu	Val	Glu	Gln	Leu	
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		caa	aac	ctc	cag	tgg	ctg	aaa	gaa	gaa	atg	gaa	acc	2859
		Gln	Asn	Leu	Gln	Trp	Leu	Lys	Glu	Glu	Met	Glu	Thr	
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		Trp	Gln	Lys	Glu	Gln	Glu	Ser	Ile	Ile	Gln	Gln	Leu	
	735											745	750	
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		His	Asp	Arg	Asn	Lys	Glu	Val	Glu	Asp	Leu	Ser	Ala	
	755											760	765	
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		Lys	Leu	Gly	Pro	Gly	Gln	Ser	Glu	Ile	Ala	Glu	Glu	
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		Leu	Gln	Arg	Lys	Glu	Arg	Met	Leu	Gln	Asp	Leu	Leu	
	785												795	
		aaa	caa	gtg	ctg	gaa	cat	gaa	atg	gag	att	caa	ggc	3099
		Lys	Gln	Val	Leu	Glu	His	Glu	Met	Glu	Ile	Gln	Gly	
													Leu	

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tta gga ggg aga gac tcc ctg atg tcc caa gca ccc atc tct aac caa Leu Gly Gly Arg Asp Ser Leu Met Ser Gln Ala Pro Ile Ser Asn Gln 850 855 860			3243
caa gct gaa gtt acc ccc act ggc cgt ctt gga aaa cag act gat caa Gln Ala Glu Val Thr Pro Thr Gly Arg Leu Gly Lys Gln Thr Asp Gln 865 870 875			3291
ggt tca atg cag ata cct tcc aga gat gat agc act tca ttg act gcc Gly Ser Met Gln Ile Pro Ser Arg Asp Asp Ser Thr Ser Leu Thr Ala 880 885 890			3339
aaa gag gat gtc agc ata ccc aga tcc aca tta gga gac ttg gac aca Lys Glu Asp Val Ser Ile Pro Arg Ser Thr Leu Gly Asp Leu Asp Thr 895 900 905 910			3387
gtt gca ggg ctg gaa aaa gaa ctg agt aat gcc aaa gag gaa ctt gaa Val Ala Gly Leu Glu Lys Glu Leu Ser Asn Ala Lys Glu Glu Leu Glu 915 920 925			3435
ctc atg gct aaa aaa gaa aga gaa agt cag atg gaa ctt tct gct cta Leu Met Ala Lys Lys Glu Arg Glu Ser Gln Met Glu Leu Ser Ala Leu 930 935 940			3483
cag tcc atg atg gct gtg cag gaa gaa gag ctg cag gtg cag gct gct Gln Ser Met Met Ala Val Gln Glu Glu Glu Leu Gln Val Gln Ala Ala 945 950 955			3531
gat atg gag tct ctg acc agg aac ata cag att aaa gaa gat ctc ata Asp Met Glu Ser Leu Thr Arg Asn Ile Gln Ile Lys Glu Asp Leu Ile 960 965 970			3579
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Ser Lys Leu Thr Pro Glu Leu Leu Val His Leu Thr Ser Thr Ile Glu	
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	625 630 635	640
Arg Gln Arg Ile His Asp Lys Ala Val Ala Leu Glu Arg Ala Ile Asp		
	645 650	655
Glu Lys Phe Ser Ala Leu Glu Glu Lys Glu Lys Glu Leu Arg Gln Leu		
	660 665	670
Arg Leu Ala Val Arg Glu Arg Asp His Asp Leu Glu Arg Leu Arg Asp		
	675 680	685
Val Leu Ser Ser Asn Glu Ala Thr Met Gln Ser Met Glu Ser Leu Leu		
	690 695	700
Arg Ala Lys Gly Leu Glu Val Glu Gln Leu Ser Thr Thr Cys Gln Asn		
	705 710 715	720
Leu Gln Trp Leu Lys Glu Glu Met Glu Thr Lys Phe Ser Arg Trp Gln		
	725 730	735
Lys Glu Gln Glu Ser Ile Ile Gln Gln Leu Gln Thr Ser Leu His Asp		

740	745	750
Arg Asn Lys Glu Val Glu Asp Leu Ser Ala Thr Leu Leu Cys Lys Leu 755 760 765		
Gly Pro Gly Gln Ser Glu Ile Ala Glu Glu Leu Cys Gln Arg Leu Gln 770 775 780		
Arg Lys Glu Arg Met Leu Gln Asp Leu Leu Ser Asp Arg Asn Lys Gln 785 790 795 800		
Val Leu Glu His Glu Met Glu Ile Gln Gly Leu Leu Gln Ser Val Ser 805 810 815		
Thr Arg Glu Gln Glu Ser Gln Ala Ala Ala Glu Lys Leu Val Gln Ala 820 825 830		
Leu Met Glu Arg Asn Ser Glu Leu Gln Ala Leu Arg Gln Tyr Leu Gly 835 840 845		
Gly Arg Asp Ser Leu Met Ser Gln Ala Pro Ile Ser Asn Gln Gln Ala 850 855 860		
Glu Val Thr Pro Thr Gly Arg Leu Gly Lys Gln Thr Asp Gln Gly Ser 865 870 875 880		
Met Gln Ile Pro Ser Arg Asp Asp Ser Thr Ser Leu Thr Ala Lys Glu 885 890 895		
Asp Val Ser Ile Pro Arg Ser Thr Leu Gly Asp Leu Asp Thr Val Ala 900 905 910		
Gly Leu Glu Lys Glu Leu Ser Asn Ala Lys Glu Glu Leu Glu Leu Met 915 920 925		
Ala Lys Lys Glu Arg Glu Ser Gln Met Glu Leu Ser Ala Leu Gln Ser 930 935 940		
Met Met Ala Val Gln Glu Glu Glu Leu Gln Val Gln Ala Ala Asp Met 945 950 955 960		
Glu Ser Leu Thr Arg Asn Ile Gln Ile Lys Glu Asp Leu Ile Lys Asp 965 970 975		
Leu Gln Met Gln Leu Val Asp Pro Glu Asp Ile Pro Ala Met Glu Arg 980 985 990		
Leu Thr Gln Glu Val Leu Leu Leu Arg Glu Lys Val Ala Ser Val Glu 995 000 005		
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Met Leu Glu Gly Leu Val Asp Glu Arg Ser Arg Leu Asn Glu Ala Leu 025 030 035 040		
Gln Ala Glu Arg Gln Leu Tyr Ser Ser Leu Val Lys Phe His Ala His		

045	050	055
Pro Glu Ser Ser Glu Arg Asp Arg Thr Leu Gln Val Glu Leu Glu Gly		
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075	080	085
Glu Arg Leu Asn Arg Leu Glu Thr Leu Ala Ala Ile Gly Gly Ala Ala		
090	095	100
Ala Gly Asp Asp Thr Glu Asp Thr Ser Thr Glu Phe Thr Asp Ser Ile		
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Glu Glu Glu Ala Ala His His Ser His Gln Gln Leu Val Lys Val Ala		
125	130	135
Leu Glu Lys Ser Leu Ala Thr Val Glu Thr Gln Asn Pro Ser Phe Ser		
140	145	150
Pro Pro Ser Pro Met Gly Gly Asp Ser Asn Arg Cys Leu Gln Glu Glu		
155	160	165
Met Leu His Leu Arg Ala Glu Phe His Gln His Leu Glu Glu Lys Arg		
170	175	180
Lys Ala Glu Glu Glu Leu Lys Glu Leu Lys Ala Gln Ile Glu Glu Ala		
185	190	195
		200
Gly Phe Ser Ser Val Ser His Ile Arg Asn Thr Met Leu Ser Leu Cys		
205	210	215
Leu Glu Asn Ala Glu Leu Lys Glu Gln Met Gly Glu Ala Met Ser Asp		
220	225	230
Gly Trp Glu Ile Glu Glu Asp Lys Glu Lys Gly Glu Val Met Val Glu		
235	240	245
Thr Val Val Thr Lys Glu Gly Leu Ser Glu Ser Ser Leu Gln Ala Glu		
250	255	260
Phe Arg Lys Leu Gln Gly Lys Leu Lys Asn Ala His Asn Ile Ile Asn		
265	270	275
		280
Leu Leu Lys Glu Gln Leu Val Leu Ser Ser Lys Glu Gly Asn Ser Lys		
285	290	295
Leu Thr Pro Glu Leu Leu Val His Leu Thr Ser Thr Ile Glu Arg Ile		
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Asn Thr Glu Leu Val Gly Ser Pro Gly Lys His Gln His Gln Glu Glu		
315	320	325
Gly Asn Val Thr Val Arg Pro Phe Pro Arg Pro Gln Ser Leu Asp Leu		
330	335	340
Gly Ala Thr Phe Thr Val Asp Ala His Gln Leu Asp Asn Gln Ser Gln		





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Ile Thr Arg His Ala Lys Asp Thr Val Lys Ser Phe Glu Asp Leu Leu				
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Arg Ser Asn Asp Ile Asp Tyr Tyr Leu Gly Gln Ser Phe Arg Glu Gln				
	685		690	695
Leu Ala Gln Gly Ser Gln Leu Thr Glu Arg Leu Thr Ser Lys Leu Ser				
	700		705	710
Thr Lys Asp His Lys Ser Glu Lys Asp Gln Ala Gly Leu Glu Pro Leu				
	715		720	725
Ala Leu Arg Leu Ser Arg Glu Leu Gln Glu Lys Glu Lys Val Ile Glu				
	730		735	740
Val Leu Gln Ala Lys Leu Asp Ala Arg Ser Leu Thr Pro Ser Ser Ser				
745		750		760
His Ala Leu Ser Asp Ser His Arg Ser Pro Ser Ser Thr Ser Phe Leu				
	765		770	775
Ser Asp Glu Leu Glu Ala Cys Ser Asp Met Asp Ile Val Ser Glu Tyr				
	780		785	790
Thr His Tyr Glu Glu Lys Lys Ala Ser Pro Ser His Ser Asp Ser Ile				
	795		800	805
His His Ser Ser His Ser Ala Val Leu Ser Ser Lys Pro Ser Ser Thr				
	810		815	820
Ser Ala Ser Gln Gly Ala Lys Ala Glu Ser Asn Ser Asn Pro Ile Ser				
825		830		840
Leu Pro Thr Pro Gln Asn Thr Pro Lys Glu Ala Asn Gln Ala His Ser				
	845		850	855
Gly Phe His Phe His Ser Ile Pro Lys Leu Ala Ser Leu Pro Gln Ala				
	860		865	870
Pro Leu Pro Ser Ala Pro Ser Ser Phe Leu Pro Phe Ser Pro Thr Gly				
	875		880	885
Pro Leu Leu Leu Gly Cys Cys Glu Thr Pro Val Val Ser Leu Ala Glu				
	890		895	900
Ala Gln Gln Glu Leu Gln Met Leu Gln Lys Gln Leu Gly Glu Ser Ala				
905		910		920
Ser Thr Val Pro Pro Ala Ser Thr Ala Thr Leu Leu Ser Asn Asp Leu				
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Glu Ala Asp Ser Ser Tyr Tyr Leu Asn Ser Ala Gln Pro His Ser Pro				
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Pro Arg Gly Thr Ile Glu Leu Gly Arg Ile Leu Glu Pro Gly Tyr Leu				

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Pro	Thr	Gly	Ala	Asp	Leu	Leu	Glu	Glu	His	Leu	Gly	Glu	Ile	Arg	Asn
				005					010					015	
Leu	Arg	Gln	Arg	Leu	Glu	Glu	Ser	Ile	Cys	Ile	Asn	Asp	Arg	Leu	Arg
			020					025					030		
Glu	Gln	Leu	Glu	His	Arg	Leu	Thr	Ser	Thr	Ala	Arg	Gly	Arg	Gly	Ser
		035					040					045			
Thr	Ser	Asn	Phe	Tyr	Ser	Gln	Gly	Leu	Glu	Ser	Ile	Pro	Gln	Leu	Cys
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Asn	Glu	Asn	Arg	Val	Leu	Arg	Glu	Asp	Asn	Arg	Arg	Leu	Gln	Ala	Gln
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Leu	Ser	His	Val	Ser	Arg	Glu	His	Ser	Gln	Glu	Thr	Glu	Ser	Leu	Arg
				085					090					095	
Glu	Ala	Leu	Leu	Ser	Ser	Arg	Ser	His	Leu	Gln	Glu	Leu	Glu	Lys	Glu
			100					105					110		
Leu	Glu	His	Gln	Lys	Val	Glu	Arg	Gln	Gln	Leu	Leu	Glu	Asp	Leu	Arg
		115					120					125			
Glu	Lys	Gln	Gln	Glu	Val	Leu	His	Phe	Arg	Glu	Glu	Arg	Leu	Ser	Leu
	130					135					140				
Gln	Glu	Asn	Asp	Ser	Arg	Leu	Gln	His	Lys	Leu	Val	Leu	Leu	Gln	Gln
145					150					155					160
Gln	Cys	Glu	Glu	Lys	Gln	Gln	Leu	Phe	Glu	Ser	Leu	Gln	Ser	Glu	Leu
				165					170					175	
Gln	Ile	Tyr	Glu	Ala	Leu	Tyr	Gly	Asn	Ser	Lys	Lys	Gly	Leu	Lys	Gly
			180					185					190		
Leu	Gly	Leu	Asp	Thr	Ser	Pro	Val	Met	Lys	Thr	Pro	Pro	Lys	Leu	Glu
		195					200					205			
Gly	Asp	Ala	Thr	Asp	Gly	Ser	Phe	Ala	Asn	Lys	His	Gly	Arg	His	Val
	210					215					220				
Ile	Gly	His	Ile	Asp	Asp	Tyr	Ser	Ala	Leu	Arg	Gln	Gln	Ile	Ala	Glu
225					230					235					240
Gly	Lys	Leu	Leu	Val	Lys	Lys	Ile	Val	Ser	Leu	Val	Arg	Ser	Ala	Cys
				245					250					255	
Ser	Phe	Pro	Gly	Leu	Glu	Ala	Gln	Gly	Thr	Glu	Val	Leu	Gly	Ser	Lys

260	265	270	
Gly Ile His Glu Leu Arg Ser	Ser Thr Ser Ala Leu His His Ala Leu		
275	280	285	
Glu Glu Ser Ala Ser Leu Leu Thr Met Phe Trp Arg Ala Ala Leu Pro			
290	295	300	
Ser Thr His Ile Pro Val Leu Pro Gly Lys Val Gly Glu Ser Thr Glu			
305	310	315	320
Arg Glu Leu Leu Glu Leu Arg Thr Lys Val Ser Lys Gln Glu Arg Leu			
325	330	335	
Leu Gln Ser Thr Thr Glu His Leu Lys Asn Ala Asn Gln Gln Lys Glu			
340	345	350	
Ser Met Glu Gln Phe Ile Val Ser Gln Leu Thr Arg Thr His Asp Val			
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	Met Ser Asn		
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Gly Tyr Arg Thr Leu Ser Gln His Leu Asn Asp Leu Lys Lys Glu Asn			
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ttc agc ctc aag ctg cgc atc tac ttc ctg gag gag cgc atg caa cag			150
Phe Ser Leu Lys Leu Arg Ile Tyr Phe Leu Glu Glu Arg Met Gln Gln			
20	25	30	35
aag tat gag gcc agc cgg gag gac atc tac aag cgg aac att gag ctg			198
Lys Tyr Glu Ala Ser Arg Glu Asp Ile Tyr Lys Arg Asn Ile Glu Leu			
40	45	50	
aag gtt gaa gtg gag agc ttg aaa cga gaa ctc cag gac aag aaa cag			246
Lys Val Glu Val Glu Ser Leu Lys Arg Glu Leu Gln Asp Lys Lys Gln			
55	60	65	
cat ctg gat aaa aca tgg gct gat gtg gag aat ctc aac agt cag aat			294
His Leu Asp Lys Thr Trp Ala Asp Val Glu Asn Leu Asn Ser Gln Asn			

70	75	80	
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tcc agg cta gca aag aat gaa gct gcg cgg atg gca gct ctg gtg gaa Ser Arg Leu Ala Lys Asn Glu Ala Ala Arg Met Ala Ala Leu Val Glu 120 125 130			438
gca gag aag gag tgt aac ctg gag ctc tca gag aaa ctg aag gga gtc Ala Glu Lys Glu Cys Asn Leu Glu Leu Ser Glu Lys Leu Lys Gly Val 135 140 145			486
acc aaa aac tgg gaa gat gta cca gga gac cag gtc aag ccc gac caa Thr Lys Asn Trp Glu Asp Val Pro Gly Asp Gln Val Lys Pro Asp Gln 150 155 160			534
tac act gag gcc ctg gcc cag agg gac agg aga att gaa gaa ctg aat Tyr Thr Glu Ala Leu Ala Gln Arg Asp Arg Arg Ile Glu Glu Leu Asn 165 170 175			582
cag agc ctg gct gcc cag gag agg ctt gta gaa cag cta tct cgg gag Gln Ser Leu Ala Ala Gln Glu Arg Leu Val Glu Gln Leu Ser Arg Glu 180 185 190 195			630
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gag acc act ata act cag cag tct gta tct gat tcc cac ttg gca gaa Glu Thr Thr Ile Thr Gln Gln Ser Val Ser Asp Ser His Leu Ala Glu 230 235 240			774
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Ala Thr Met Gln Ser Met Glu Ser Leu Leu Arg Ala Lys Gly Leu Glu	
535 540 545	
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Val Glu Gln Leu Ser Thr Thr Cys Gln Asn Leu Gln Trp Leu Lys Glu	
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Ile Ala Glu Glu Leu Cys Gln Arg Leu Gln Arg Lys Glu Arg Met Leu	
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Ser Gln Ala Pro Ile Ser Asn Gln Gln Ala Glu Val Thr Pro Thr Gly	
695 700 705	
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Asp Asp Ser Thr Ser Leu Thr Ala Lys Glu Asp Val Ser Ile Pro Arg	
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Leu Leu Leu Ser Glu Ala Thr Val Phe Ala Gln Ala Asn Glu Leu Glu	
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Lys Tyr Arg Val Met Leu Ser Glu Ser Leu Val Lys Gln Asp Ser Lys	
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Gln Ile Gln Val Asp Phe Gln Asp Leu Gly Tyr Glu Thr Cys Gly Arg	
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Ser Glu Asn Glu Ala Glu Arg Glu Glu Thr Thr Ser Pro Glu Cys Glu	
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Glu His Asn Ser Leu Lys Glu Met Val Leu Met Glu Gly Leu Cys Ser	
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Glu Gln Gly Arg Arg Gly Ser Thr Leu Ala Ser Ser Ser Glu Arg Lys	
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ccc ttg gag aac cag cta ggg aag cag gaa gag ttc cgg gta tat gga	4086
Pro Leu Glu Asn Gln Leu Gly Lys Gln Glu Glu Phe Arg Val Tyr Gly	
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Lys Ser Glu Asn Ile Leu Val Leu Arg Lys Asp Ile Glu Asp Leu Lys	
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Ala Gln Leu Gln Asn Ala Asn Lys Val Ile Gln Asn Leu Lys Ser Arg	
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Val Arg Ser Leu Ser Val Thr Ser Asp Tyr Ser Ser Ser Leu Glu Arg	
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Pro Arg Lys Leu Arg Ala Val Gly Thr Leu Glu Gly Ser Ser Pro His	
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agt gtc cct gat gag gat gag ggg tgg ctg tct gat ggc act ggg gct	4326
Ser Val Pro Asp Glu Asp Glu Gly Trp Leu Ser Asp Gly Thr Gly Ala	
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Phe Tyr Ser Pro Gly Leu Gln Ala Lys Lys Asp Leu Glu Ser Leu Ile	
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Glu Lys Leu Ala Glu Glu Leu Arg Ser Ala Ser Trp Pro Gly Lys Tyr	
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Asp Ser Leu Ile Gln Asp Gln Ala Arg Glu Leu Ser Tyr Leu Arg Gln	
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Lys Ile Arg Glu Gly Arg Gly Ile Cys Tyr Leu Ile Thr Gln His Ala	
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Gln Leu Thr Glu Arg Leu Thr Ser Lys Leu Ser Thr Glu Asp His Lys	
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Ser His Arg Ser Pro Ser Ser Thr Ser Phe Leu Ser Asp Glu Leu Glu	
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Ile	Pro	Lys	Leu	Ala	Ser	Leu	Pro	Gln	Ala	Pro	Leu	Pro	Ser	Ala	Pro		
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Ser	Ser	Phe	Leu	Pro	Phe	Ser	Pro	Thr	Gly	Pro	Pro	Leu	Leu	Gly	Cys		
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Cys	Glu	Thr	Pro	Glu	Val	Ser	Leu	Ala	Glu	Ser	Gln	Gln	Glu	Leu	Gln		
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Thr	Ala	Thr	Leu	Leu	Ser	Asn	Asp	Leu	Glu	Ala	Asp	Ser	Ser	Tyr	Tyr		
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Val	Met	Arg	Pro	Gln	Lys	Gly	Ser	Val	Ser	Gly	Asp	Leu	Ser	Ser	Gly		
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Glu	Glu	His	Leu	Gly	Glu	Ile	Trp	Asn	Leu	Arg	Gln	Arg	Leu	Glu	Glu		
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Thr	Ser	Thr	Ala	Arg	Gly	Arg	Gly	Ser	Thr	Ser	Asn	Phe	Tyr	Ser	Gln		
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Gly	Leu	Glu	Ser	Ile	Pro	Gln	Leu	Cys	Asn	Glu	Asn	Arg	Val	Leu	Arg		
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gaa	gaa	aat	cga	aga	ctt	cag	gct	caa	ctg	agt	cat	gtt	tcc	aga	ggt	5766	
Glu	Glu	Asn	Arg	Arg	Leu	Gln	Ala	Gln	Leu	Ser	His	Val	Ser	Arg	Gly		

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tcc cac ctt caa gag ctg gaa aag gag ctg gag cac cag aag gtg gaa Ser His Leu Gln Glu Leu Glu Lys Glu Leu Glu His Gln Lys Val Glu 925 930 935			5862
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cat ttc agg gag gaa cgt ctt tcc ctc cag gaa aac gac tcc aga ctg His Phe Arg Glu Glu Arg Leu Ser Leu Gln Glu Asn Asp Ser Arg Leu 960 965 970			5958
cag cac aag ctg gtt ctc ctg cag caa cag tgt gaa gag aaa cag cag Gln His Lys Leu Val Leu Leu Gln Gln Gln Cys Glu Glu Lys Gln Gln 975 980 985			6006
ctc ttt gag tcc ctc cag tca gag cta caa atc tac gag gca ctt tat Leu Phe Glu Ser Leu Gln Ser Glu Leu Gln Ile Tyr Glu Ala Leu Tyr 990 995 000			6054
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7161

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<211>2327

<212>PRT

<213> Homo sapiens

<400>294

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Met	Gln	Gln	Lys	Tyr	Glu	Ala	Ser	Arg	Glu	Asp	Ile	Tyr	Lys	Arg	Asn
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	50					55					60				
Lys	Lys	Gln	His	Leu	Asp	Lys	Thr	Trp	Ala	Asp	Val	Glu	Asn	Leu	Asn
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Glu	Thr	Glu	His	Val	Tyr	Glu	Leu	Leu	Glu	Asn	Lys	Ile	Gln	Leu	Leu
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Gln	Glu	Glu	Ser	Arg	Leu	Ala	Lys	Asn	Glu	Ala	Ala	Arg	Met	Ala	Ala
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Leu	Val	Glu	Ala	Glu	Lys	Glu	Cys	Asn	Leu	Glu	Leu	Ser	Glu	Lys	Leu
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Pro	Asp	Gln	Tyr	Thr	Glu	Ala	Leu	Ala	Gln	Arg	Asp	Arg	Arg	Ile	Glu
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Ser	Arg	Glu	Lys	Gln	Gln	Leu	Leu	His	Leu	Leu	Glu	Glu	Pro	Thr	Ser
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Leu	Ala	Glu	Leu	Gln	Glu	Lys	Ile	Gln	Gln	Thr	Glu	Ala	Thr	Asn	Lys
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 Lys Thr Leu Glu Ala Asn Glu Met Leu Leu Glu Lys Leu Arg Gln Arg  
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 Ile His Asp Lys Ala Val Ala Leu Glu Arg Ala Ile Asp Glu Lys Phe  
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 Ser Ala Leu Glu Glu Lys Glu Lys Glu Leu Arg Gln Leu Arg Leu Ala  
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Glu Asp Val Ser Ile Pro	Arg Ser Thr Leu Gly	Asp Leu Asp Thr Val	
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gcc cat cca gag agc tct	gag aga gac cga act	ctg cag gtg gaa ctg	2692
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Pro Leu Ala Leu Arg Leu Ser Arg Glu Leu Gln Glu Lys Glu Lys Val	
505 510 515	
att gaa gtc ctg cag gcc aag ctg gat gct cgg tcc ctc aca ccc tcc	4756
Ile Glu Val Leu Gln Ala Lys Leu Asp Ala Arg Ser Leu Thr Pro Ser	
520 525 530	
agc agc cgt gcc ttg tct gac tcc cac cgc tct ccc agc agc acc tct	4804
Ser Ser Arg Ala Leu Ser Asp Ser His Arg Ser Pro Ser Ser Thr Ser	

535	540	545	550	
ttc ctg tct gat gag ctg gaa gcc tgc tct gac atg gac ata gtc agc Phe Leu Ser Asp Glu Leu Glu Ala Cys Ser Asp Met Asp Ile Val Ser	555	560	565	4852
gag tac aca cac tat gaa gag aag aaa gct tct ccc agt cac tca ggt Glu Tyr Thr His Tyr Glu Glu Lys Lys Ala Ser Pro Ser His Ser Gly	570	575	580	4900
agc agt gca tct cag ggg gct aag gcc gaa tcc aac agc aac ccc atc Ser Ser Ala Ser Gln Gly Ala Lys Ala Glu Ser Asn Ser Asn Pro Ile	585	590	595	4948
agc ttg cca act ccc cag aat acc ccc aag gag gcc aac caa gcc cat Ser Leu Pro Thr Pro Gln Asn Thr Pro Lys Glu Ala Asn Gln Ala His	600	605	610	4996
tca ggc ttt cat ttt cac tcc ata ccc aag ctg gct agc ctt cct cag Ser Gly Phe His Phe His Ser Ile Pro Lys Leu Ala Ser Leu Pro Gln	615	620	625	5044
gca cca ttg ccc tca gct cca tcc agc ttc ctg cct ttc agc ccc act Ala Pro Leu Pro Ser Ala Pro Ser Ser Phe Leu Pro Phe Ser Pro Thr	635	640	645	5092
ggc cct ccc ctc ctt ggc tgc tgt gag aca cca gag gtc tcc ttg gct Gly Pro Pro Leu Leu Gly Cys Cys Glu Thr Pro Glu Val Ser Leu Ala	650	655	660	5140
gag tct cag cag gag cta cag atg ctg cag aag cag ttg gga gaa agt Glu Ser Gln Gln Glu Leu Gln Met Leu Gln Lys Gln Leu Gly Glu Ser	665	670	675	5188
agc act gtt cct cct gct tcc aca gct aca ttg ctg agc aac gac ttg Ser Thr Val Pro Pro Ala Ser Thr Ala Thr Leu Leu Ser Asn Asp Leu	680	685	690	5236
gaa gcc gac tct tcc tac tac ctc aac tct gcc cag cct cac tct cct Glu Ala Asp Ser Ser Tyr Tyr Leu Asn Ser Ala Gln Pro His Ser Pro	695	700	705	5284
cca agg ggc acc ata gaa ctg gga aga atc cta gag cct ggg tac ctg Pro Arg Gly Thr Ile Glu Leu Gly Arg Ile Leu Glu Pro Gly Tyr Leu	715	720	725	5332
ggc agc agt ggc aag tgg gat gtg atg agg cct cag aaa ggg agt gta Gly Ser Ser Gly Lys Trp Asp Val Met Arg Pro Gln Lys Gly Ser Val	730	735	740	5380
tct ggg gac cta tcc tca ggc tcc tct gtg tac cag ctt aac tcc aaa Ser Gly Asp Leu Ser Ser Gly Ser Ser Val Tyr Gln Leu Asn Ser Lys	745	750	755	5428
ccc aca ggg gct gac ctg ctg gaa gag cat ctt ggt gaa atc tgg aac Pro Thr Gly Ala Asp Leu Leu Glu Glu His Leu Gly Glu Ile Trp Asn	760	765	770	5476

ctg cgc cag cgc ctg gag gag tcc atc tgc atc aat gac tgc cta cgg Leu Arg Gln Arg Leu Glu Glu Ser Ile Cys Ile Asn Asp Cys Leu Arg 775 780 785 790	5524
gag caa ctg gaa cac cgg ctg acc tct act gct cgt gga agg gga tcc Glu Gln Leu Glu His Arg Leu Thr Ser Thr Ala Arg Gly Arg Gly Ser 795 800 805	5572
act tct aac ttc tac agt cag ggc ctg gag tcc ata cct cag ctc tgc Thr Ser Asn Phe Tyr Ser Gln Gly Leu Glu Ser Ile Pro Gln Leu Cys 810 815 820	5620
aat gag aac aga gtc ctc agg gaa gaa aat cga aga ctt cag gct caa Asn Glu Asn Arg Val Leu Arg Glu Glu Asn Arg Arg Leu Gln Ala Gln 825 830 835	5668
ctg agt cat gtt tcc aga ggt cac tcc cag gaa aca gaa agc ctg agg Leu Ser His Val Ser Arg Gly His Ser Gln Glu Thr Glu Ser Leu Arg 840 845 850	5716
gag gct ctg ctg tcc tct cga tcc cac ctt caa gag ctg gaa aag gag Glu Ala Leu Leu Ser Ser Arg Ser His Leu Gln Glu Leu Glu Lys Glu 855 860 865 870	5764
ctg gag cac cag aag gtg gaa agg cag cag ctt ttg gaa gac ttg agg Leu Glu His Gln Lys Val Glu Arg Gln Gln Leu Leu Glu Asp Leu Arg 875 880 885	5812
gag aag cag caa gag gtc ttg cat ttc agg gag gaa cgt ctt tcc ctc Glu Lys Gln Gln Glu Val Leu His Phe Arg Glu Glu Arg Leu Ser Leu 890 895 900	5860
cag gaa aac gac tcc aga ctg cag cac aag ctg gtt ctc ctg cag caa Gln Glu Asn Asp Ser Arg Leu Gln His Lys Leu Val Leu Leu Gln Gln 905 910 915	5908
cag tgt gaa gag aaa cag cag ctc ttt gag tcc ctc cag tca gag cta Gln Cys Glu Glu Lys Gln Gln Leu Phe Glu Ser Leu Gln Ser Glu Leu 920 925 930	5956
caa atc tac gag gca ctt tat ggc aat tcc aag aag ggg ctg aaa gct Gln Ile Tyr Glu Ala Leu Tyr Gly Asn Ser Lys Lys Gly Leu Lys Ala 935 940 945 950	6004
tac agc ctg gat gcc tgt cac caa atc cct ttg agc agt gac ctg agc Tyr Ser Leu Asp Ala Cys His Gln Ile Pro Leu Ser Ser Asp Leu Ser 955 960 965	6052
cac ctg gtg gca gag gta caa gct ctg aga ggg cag ctg gag cag agc His Leu Val Ala Glu Val Gln Ala Leu Arg Gly Gln Leu Glu Gln Ser 970 975 980	6100
att cag ggg aac aat tgt ctg cga ctg cag ctg caa cag cag ctg gag Ile Gln Gly Asn Asn Cys Leu Arg Leu Gln Leu Gln Gln Leu Glu 985 990 995	6148

agc ggt gct ggc aaa gcc agc ctc agc ccc tcc tcc att aac cag aac Ser Gly Ala Gly Lys Ala Ser Leu Ser Pro Ser Ser Ile Asn Gln Asn 000 005 010	6196
ttc cca gcc agc act gac cct gga aac aag cag ctg ctc ctc caa ggt Phe Pro Ala Ser Thr Asp Pro Gly Asn Lys Gln Leu Leu Leu Gln Gly 015 020 025 030	6244
tca gct gtg tcc cct cca gtc cgg gat gtt ggt atg aat tcc cca gct Ser Ala Val Ser Pro Pro Val Arg Asp Val Gly Met Asn Ser Pro Ala 035 040 045	6292
ctg gtc ttc ccc agc tct gct tcc tct act cct ggc tca gat tca gtt Leu Val Phe Pro Ser Ser Ala Ser Ser Thr Pro Gly Ser Asp Ser Val 050 055 060	6340
gtg ttg tca ttt tct ttt tca ggc ttg ggt ttg gat act tct cca gta Val Leu Ser Phe Ser Phe Ser Gly Leu Gly Leu Asp Thr Ser Pro Val 065 070 075	6388
atg aag acc cct ccc aag cta gag ggt gat gct act gat ggc tcc ttt Met Lys Thr Pro Pro Lys Leu Glu Gly Asp Ala Thr Asp Gly Ser Phe 080 085 090	6436
gcc aat aag cat ggc cgc cat gtc att ggc cac att gat gac tac agt Ala Asn Lys His Gly Arg His Val Ile Gly His Ile Asp Asp Tyr Ser 095 100 105 110	6484
gcc cta aga cag cag att gcg gag ggc aag ctg ctg gtc aaa aag ata Ala Leu Arg Gln Gln Ile Ala Glu Gly Lys Leu Leu Val Lys Lys Ile 115 120 125	6532
gtg tct ctt gtg aga tca gcg tgc agc ttc cct ggc ctt gaa gcc caa Val Ser Leu Val Arg Ser Ala Cys Ser Phe Pro Gly Leu Glu Ala Gln 130 135 140	6580
ggc aca gag ggc agc aaa ggc att cat gag ctt cgg agc agc acc agt Gly Thr Glu Gly Ser Lys Gly Ile His Glu Leu Arg Ser Ser Thr Ser 145 150 155	6628
gcc ctg cac cat gcc cta gag gag tgc gct tcc ctc ctc acc atg ttc Ala Leu His His Ala Leu Glu Ser Ala Ser Leu Leu Thr Met Phe 160 165 170	6676
tgg aga gcg gcc ctg cca agc acc cac atc cct gtg ctg cct ggc aaa Trp Arg Ala Ala Leu Pro Ser Thr His Ile Pro Val Leu Pro Gly Lys 175 180 185 190	6724
cag gga gaa tca aca gaa agg gaa ctt ctg gaa ctg aga acc aaa gta Gln Gly Glu Ser Thr Glu Arg Glu Leu Leu Glu Leu Arg Thr Lys Val 195 200 205	6772
tcc aaa cag gag cag ctc ctt cag agc aca act gag cat ctg aag aac Ser Lys Gln Glu Gln Leu Leu Gln Ser Thr Thr Glu His Leu Lys Asn 210 215 220	6820
gcc aac cag cag aag gag agc atg gaa cag ttc att gtc agc gta acc	6868

Ala Asn Gln Gln Lys Glu Ser Met Glu Gln Phe Ile Val Ser Val Thr  
225 230 235

aga aca cat gat gtt tta aag aag gca agg act aac tta gag gtg aaa 6916  
Arg Thr His Asp Val Leu Lys Lys Ala Arg Thr Asn Leu Glu Val Lys  
240 245 250

tcc cta agg gct ctg ccg tgt act cca gcc ttg tgacccttgc 6959  
Ser Leu Arg Ala Leu Pro Cys Thr Pro Ala Leu  
255 260 265

cttccaggaa ccatgcaaga agcgcagcca ccagaagtcc ttaaaacagc 7009

aggaaaggtg agcctgtccc ccttttgtgc agctacctat ctgctgagga 7059

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Gln Gln Glu Thr Glu His Val Tyr Glu Leu Leu Glu Asn Lys Ile Gln  
35 40 45

Leu Leu Gln Glu Glu Ser Arg Leu Ala Lys Asn Glu Ala Ala Arg Met  
50 55 60

Ala Ala Leu Val Glu Ala Glu Lys Glu Cys Asn Leu Glu Leu Ser Glu  
65 70 75 80

Lys Leu Lys Gly Val Thr Lys Asn Trp Glu Asp Val Pro Gly Asp Gln  
85 90 95

Val Lys Pro Asp Gln Tyr Thr Glu Thr Leu Ala Gln Arg Asp Lys Arg  
100 105 110

Ile Glu Glu Leu Asn Gln Ser Leu Ala Ala Gln Glu Arg Leu Val Glu  
115 120 125

Gln Leu Ser Arg Glu Lys Gln Gln Leu Leu His Leu Leu Glu Glu Pro  
130 135 140

Thr Ser Met Glu Val Gln Pro Met Thr Glu Glu Leu Leu Lys Gln Gln



145		150		155		160									
Lys	Leu	Asn	Ser	His	Glu	Thr	Thr	Ile	Thr	Gln	Gln	Ser	Val	Ser	Asp
				165					170					175	
Ser	His	Leu	Ala	Glu	Leu	Gln	Glu	Lys	Ile	Gln	Gln	Thr	Glu	Ala	Thr
			180					185					190		
Asn	Lys	Ile	Leu	Gln	Glu	Lys	Leu	Asn	Glu	Met	Ser	Tyr	Glu	Leu	Lys
		195					200					205			
Cys	Ala	Gln	Glu	Ser	Ser	Gln	Lys	Gln	Asp	Gly	Thr	Ile	Gln	Asn	Leu
	210					215					220				
Lys	Glu	Thr	Leu	Lys	Ser	Arg	Glu	Arg	Glu	Thr	Glu	Glu	Leu	Tyr	Gln
225					230					235					240
Val	Ile	Glu	Gly	Gln	Asn	Asp	Thr	Met	Ala	Lys	Leu	Arg	Glu	Met	Leu
				245					250					255	
His	Gln	Ser	Gln	Leu	Gly	Gln	Leu	Gln	Ser	Ser	Glu	Gly	Thr	Ser	Pro
			260					265					270		
Ala	Gln	Gln	Gln	Val	Ala	Leu	Leu	Asp	Leu	Gln	Ser	Ala	Leu	Phe	Cys
		275					280					285			
Ser	Gln	Leu	Glu	Ile	Gln	Lys	Leu	Gln	Arg	Val	Val	Arg	Gln	Lys	Glu
	290					295					300				
Arg	Gln	Leu	Ala	Asp	Ala	Lys	Gln	Cys	Val	Gln	Phe	Val	Glu	Ala	Ala
305					310					315					320
Ala	His	Glu	Ser	Glu	Gln	Gln	Lys	Glu	Ala	Ser	Trp	Lys	His	Asn	Gln
				325					330					335	
Glu	Leu	Arg	Lys	Ala	Leu	Gln	Gln	Leu	Gln	Glu	Glu	Leu	Gln	Asn	Lys
			340					345					350		
Ser	Gln	Gln	Leu	Arg	Ala	Trp	Glu	Ala	Glu	Lys	Tyr	Asn	Glu	Ile	Arg
		355					360					365			
Thr	Gln	Glu	Gln	Asn	Ile	Gln	His	Leu	Asn	His	Ser	Leu	Ser	His	Lys
	370					375					380				
Glu	Gln	Leu	Leu	Gln	Glu	Phe	Arg	Glu	Leu	Leu	Gln	Tyr	Arg	Asp	Asn
385				390						395					400
Ser	Asp	Lys	Thr	Leu	Glu	Ala	Asn	Glu	Met	Leu	Leu	Glu	Lys	Leu	Arg
				405					410					415	
Gln	Arg	Ile	His	Asp	Lys	Ala	Val	Ala	Leu	Glu	Arg	Ala	Ile	Asp	Glu
			420					425					430		
Lys	Phe	Ser	Ala	Leu	Glu	Glu	Lys	Glu	Lys	Glu	Leu	Arg	Gln	Leu	Arg
		435					440					445			
Leu	Ala	Val	Arg	Glu	Arg	Asp	His	Asp	Leu	Glu	Arg	Leu	Arg	Asp	Val

450	455	460
Leu Ser Ser Asn Glu Ala Thr Met Gln Ser Met Glu Ser Leu Leu Arg		
465	470	475 480
Ala Lys Gly Leu Glu Val Glu Gln Leu Ser Thr Thr Cys Gln Asn Leu		
	485	490 495
Gln Trp Leu Lys Glu Glu Met Glu Thr Lys Phe Ser Arg Trp Gln Lys		
	500	505 510
Glu Gln Glu Ser Ile Ile Gln Gln Leu Gln Thr Ser Leu His Asp Arg		
	515	520 525
Asn Lys Glu Val Glu Asp Leu Ser Ala Thr Leu Leu Cys Lys Leu Gly		
	530	535 540
Pro Gly Gln Ser Glu Ile Ala Glu Glu Leu Cys Gln Arg Leu Gln Arg		
545	550	555 560
Lys Glu Arg Met Leu Gln Asp Leu Leu Ser Asp Arg Asn Lys Gln Val		
	565	570 575
Leu Glu His Glu Met Glu Ile Gln Gly Leu Leu Gln Ser Val Ser Thr		
	580	585 590
Arg Glu Gln Glu Ser Gln Ala Ala Glu Lys Leu Val Gln Ala Leu		
	595	600 605
Met Glu Arg Asn Ser Glu Leu Gln Ala Leu Arg Gln Tyr Leu Gly Gly		
	610	615 620
Arg Asp Ser Leu Met Ser Gln Ala Pro Ile Ser Asn Gln Gln Ala Glu		
625	630	635 640
Val Thr Pro Thr Gly Arg Leu Gly Lys Gln Thr Asp Gln Gly Ser Met		
	645	650 655
Gln Ile Pro Ser Arg Asp Asp Ser Thr Ser Leu Thr Ala Lys Glu Asp		
	660	665 670
Val Ser Ile Pro Arg Ser Thr Leu Gly Asp Leu Asp Thr Val Ala Gly		
	675	680 685
Leu Glu Lys Glu Leu Ser Asn Ala Lys Glu Glu Leu Glu Leu Met Ala		
	690	695 700
Lys Lys Glu Arg Glu Ser Gln Met Glu Leu Ser Ala Leu Gln Ser Met		
705	710	715 720
Met Ala Val Gln Glu Glu Glu Leu Gln Val Gln Ala Ala Asp Met Glu		
	725	730 735
Ser Leu Thr Arg Asn Ile Gln Ile Lys Glu Asp Leu Ile Lys Asp Leu		
	740	745 750
Gln Met Gln Leu Val Asp Pro Glu Asp Ile Pro Ala Met Glu Arg Leu		

755	760	765
Thr Gln Glu Val Leu Leu Leu Arg Glu Lys Val Ala Ser Val Glu Ser		
770	775	780
Gln Gly Gln Glu Ile Ser Gly Asn Arg Arg Gln Gln Gln Leu Leu Leu		
785	790	795 800
Met Leu Glu Gly Leu Val Asp Glu Arg Ser Arg Leu Asn Glu Ala Leu		
	805	810 815
Gln Ala Glu Arg Gln Leu Tyr Ser Ser Leu Val Lys Phe His Ala His		
	820	825 830
Pro Glu Ser Ser Glu Arg Asp Arg Thr Leu Gln Val Glu Leu Glu Gly		
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Ala Gln Val Leu Arg Ser Arg Leu Glu Glu Val Leu Gly Arg Ser Leu		
	850	855 860
Glu Arg Leu Asn Arg Leu Glu Thr Leu Ala Ala Ile Gly Gly Ala Ala		
	865	870 875 880
Ala Gly Asp Asp Thr Glu Asp Thr Ser Thr Glu Phe Thr Asp Ser Ile		
	885	890 895
Glu Glu Glu Ala Ala His His Ser His Gln Gln Leu Val Lys Val Ala		
	900	905 910
Leu Glu Lys Ser Leu Ala Thr Val Glu Thr Gln Asn Pro Ser Phe Ser		
	915	920 925
Pro Pro Ser Pro Met Gly Gly Asp Ser Asn Arg Cys Leu Gln Glu Glu		
	930	935 940
Met Leu His Leu Arg Ala Glu Ile His Gln His Leu Glu Glu Lys Arg		
	945	950 955 960
Lys Ala Glu Glu Glu Leu Lys Glu Leu Lys Ala Gln Ile Glu Glu Ala		
	965	970 975
Gly Phe Ser Ser Val Ser His Ile Arg Asn Thr Met Leu Ser Leu Cys		
	980	985 990
Leu Glu Asn Ala Glu Leu Lys Glu Gln Met Gly Glu Thr Met Ser Asp		
	995	000 005
Gly Trp Glu Ile Glu Glu Asp Lys Glu Lys Gly Glu Val Met Val Glu		
	010	015 020
Thr Val Val Thr Lys Glu Gly Leu Ser Glu Ser Ser Leu Gln Ala Glu		
	025	030 035 040
Phe Arg Lys Leu Gln Gly Lys Leu Lys Asn Ala His Asn Ile Ile Asn		
	045	050 055
Leu Leu Lys Glu Gln Leu Val Leu Ser Ser Lys Glu Gly Asn Ser Lys		

060	065	070
Leu Thr Pro Glu Leu Leu Val 075	His Leu Thr Ser Thr 080	Ile Glu Arg Ile 085
Asn Thr Glu Leu Val Gly Ser 090	Pro Gly Lys His Gln 095	His Gln Glu Glu 100
Gly Asn Val Thr Val Arg Pro Phe 105	Pro Arg Pro Gln Ser Leu Asp 110	Leu 120
Gly Ala Thr Phe Thr Val Asp Ala His 125	Gln Gln Leu Asp Asn Gln Ser 130	
Gln Pro Arg Asp Pro Gly Pro Gln Pro Ala Phe Ser Leu Pro Gly Ser 140		150
Thr Gln His Leu Arg Ser Gln Leu Ser Gln Cys Lys Gln Arg Tyr Gln 155		165
Asp Leu Gln Glu Lys Leu Leu Leu Ser Glu Ala Thr Val Phe Ala Gln 170		180
Ala Asn Glu Leu Glu Lys Tyr Arg Val Met Leu Ser Glu Ser Leu Val 185		200
Lys Gln Asp Ser Lys Gln Ile Gln Val Asp Phe Gln Asp Leu Gly Tyr 205		215
Glu Thr Cys Gly Arg Ser Glu Asn Glu Ala Glu Arg Glu Glu Thr Thr 220		230
Ser Pro Glu Cys Glu Glu His Asn Ser Leu Lys Glu Met Val Leu Met 235		245
Glu Gly Leu Cys Ser Glu Gln Gly Arg Arg Gly Ser Thr Leu Ala Ser 250		260
Ser Ser Glu Arg Lys Pro Leu Glu Asn Gln Leu Gly Lys Gln Glu Glu 265		280
Phe Arg Val Tyr Gly Lys Ser Glu Asn Ile Leu Val Leu Arg Lys Asp 285		295
Ile Glu Asp Leu Lys Ala Gln Leu Gln Asn Ala Asn Lys Val Ile Gln 300		310
Asn Leu Lys Ser Arg Val Arg Ser Leu Ser Val Thr Ser Asp Tyr Ser 315		325
Ser Ser Leu Glu Arg Pro Arg Lys Leu Arg Ala Val Gly Thr Leu Glu 330		340
Gly Ser Ser Pro His Ser Val Pro Asp Glu Asp Glu Gly Trp Leu Ser 345		360
Asp Gly Thr Gly Ala Phe Tyr Ser Pro Gly Leu Gln Ala Lys Lys Asp		

365										370					375						
Leu	Glu	Ser	Leu	Ile	Gln	Arg	Val	Ser	Gln	Leu	Glu	Ala	Gln	Leu	Pro						
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Glu	Asn	Gly	Leu	Glu	Glu	Lys	Leu	Ala	Glu	Glu	Leu	Arg	Ser	Ala	Ser						
		395					400					405									
Trp	Pro	Gly	Lys	Tyr	Asp	Ser	Leu	Ile	Gln	Asp	Gln	Ala	Arg	Glu	Leu						
	410					415					420										
Ser	Tyr	Leu	Arg	Gln	Lys	Ile	Arg	Glu	Gly	Arg	Gly	Ile	Cys	Tyr	Leu						
425					430					435					440						
Ile	Thr	Gln	His	Ala	Lys	Asp	Thr	Val	Lys	Ser	Phe	Glu	Asp	Leu	Leu						
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Arg	Ser	Asn	Asp	Ile	Asp	Tyr	Tyr	Leu	Gly	Gln	Ser	Phe	Arg	Glu	Gln						
		460						465					470								
Leu	Ala	Gln	Gly	Ser	Gln	Leu	Thr	Glu	Arg	Leu	Thr	Ser	Lys	Leu	Ser						
		475				480						485									
Thr	Glu	Asp	His	Lys	Ser	Glu	Lys	Asp	Gln	Ala	Gly	Leu	Glu	Pro	Leu						
	490					495					500										
Ala	Leu	Arg	Leu	Ser	Arg	Glu	Leu	Gln	Glu	Lys	Glu	Lys	Val	Ile	Glu						
505					510					515					520						
Val	Leu	Gln	Ala	Lys	Leu	Asp	Ala	Arg	Ser	Leu	Thr	Pro	Ser	Ser	Ser						
			525					530					535								
Arg	Ala	Leu	Ser	Asp	Ser	His	Arg	Ser	Pro	Ser	Ser	Thr	Ser	Phe	Leu						
		540						545					550								
Ser	Asp	Glu	Leu	Glu	Ala	Cys	Ser	Asp	Met	Asp	Ile	Val	Ser	Glu	Tyr						
	555						560					565									
Thr	His	Tyr	Glu	Glu	Lys	Lys	Ala	Ser	Pro	Ser	His	Ser	Gly	Ser	Ser						
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Ala	Ser	Gln	Gly	Ala	Lys	Ala	Glu	Ser	Asn	Ser	Asn	Pro	Ile	Ser	Leu						
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Pro	Thr	Pro	Gln	Asn	Thr	Pro	Lys	Glu	Ala	Asn	Gln	Ala	His	Ser	Gly						
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Phe	His	Phe	His	Ser	Ile	Pro	Lys	Leu	Ala	Ser	Leu	Pro	Gln	Ala	Pro						
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Leu	Pro	Ser	Ala	Pro	Ser	Ser	Phe	Leu	Pro	Phe	Ser	Pro	Thr	Gly	Pro						
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Pro	Leu	Leu	Gly	Cys	Cys	Glu	Thr	Pro	Glu	Val	Ser	Leu	Ala	Glu	Ser						
	650					655					660										
Gln	Gln	Glu	Leu	Gln	Met	Leu	Gln	Lys	Gln	Leu	Gly	Glu	Ser	Ser	Thr						

665		670		675		680
Val Pro Pro Ala Ser Thr Ala Thr Leu Leu Ser Asn Asp Leu Glu Ala						
		685		690		695
Asp Ser Ser Tyr Tyr Leu Asn Ser Ala Gln Pro His Ser Pro Pro Arg						
		700		705		710
Gly Thr Ile Glu Leu Gly Arg Ile Leu Glu Pro Gly Tyr Leu Gly Ser						
		715		720		725
Ser Gly Lys Trp Asp Val Met Arg Pro Gln Lys Gly Ser Val Ser Gly						
		730		735		740
Asp Leu Ser Ser Gly Ser Ser Val Tyr Gln Leu Asn Ser Lys Pro Thr						
		745		750		755
Gly Ala Asp Leu Leu Glu Glu His Leu Gly Glu Ile Trp Asn Leu Arg						
		765		770		775
Gln Arg Leu Glu Glu Ser Ile Cys Ile Asn Asp Cys Leu Arg Glu Gln						
		780		785		790
Leu Glu His Arg Leu Thr Ser Thr Ala Arg Gly Arg Gly Ser Thr Ser						
		795		800		805
Asn Phe Tyr Ser Gln Gly Leu Glu Ser Ile Pro Gln Leu Cys Asn Glu						
		810		815		820
Asn Arg Val Leu Arg Glu Glu Asn Arg Arg Leu Gln Ala Gln Leu Ser						
		825		830		835
His Val Ser Arg Gly His Ser Gln Glu Thr Glu Ser Leu Arg Glu Ala						
		845		850		855
Leu Leu Ser Ser Arg Ser His Leu Gln Glu Leu Glu Lys Glu Leu Glu						
		860		865		870
His Gln Lys Val Glu Arg Gln Gln Leu Leu Glu Asp Leu Arg Glu Lys						
		875		880		885
Gln Gln Glu Val Leu His Phe Arg Glu Glu Arg Leu Ser Leu Gln Glu						
		890		895		900
Asn Asp Ser Arg Leu Gln His Lys Leu Val Leu Leu Gln Gln Gln Cys						
		905		910		915
Glu Glu Lys Gln Gln Leu Phe Glu Ser Leu Gln Ser Glu Leu Gln Ile						
		925		930		935
Tyr Glu Ala Leu Tyr Gly Asn Ser Lys Lys Gly Leu Lys Ala Tyr Ser						
		940		945		950
Leu Asp Ala Cys His Gln Ile Pro Leu Ser Ser Asp Leu Ser His Leu						
		955		960		965
Val Ala Glu Val Gln Ala Leu Arg Gly Gln Leu Glu Gln Ser Ile Gln						

970	975	980
Gly Asn Asn Cys Leu Arg Leu Gln Leu Gln Gln Gln Leu Glu Ser Gly 985	990	995 000
Ala Gly Lys Ala Ser Leu Ser Pro Ser Ser Ile Asn Gln Asn Phe Pro 005	010	015
Ala Ser Thr Asp Pro Gly Asn Lys Gln Leu Leu Leu Gln Gly Ser Ala 020	025	030
Val Ser Pro Pro Val Arg Asp Val Gly Met Asn Ser Pro Ala Leu Val 035	040	045
Phe Pro Ser Ser Ala Ser Ser Thr Pro Gly Ser Asp Ser Val Val Leu 050	055	060
Ser Phe Ser Phe Ser Gly Leu Gly Leu Asp Thr Ser Pro Val Met Lys 065	070	075 080
Thr Pro Pro Lys Leu Glu Gly Asp Ala Thr Asp Gly Ser Phe Ala Asn 085	090	095
Lys His Gly Arg His Val Ile Gly His Ile Asp Asp Tyr Ser Ala Leu 100	105	110
Arg Gln Gln Ile Ala Glu Gly Lys Leu Leu Val Lys Lys Ile Val Ser 115	120	125
Leu Val Arg Ser Ala Cys Ser Phe Pro Gly Leu Glu Ala Gln Gly Thr 130	135	140
Glu Gly Ser Lys Gly Ile His Glu Leu Arg Ser Ser Thr Ser Ala Leu 145	150	155 160
His His Ala Leu Glu Glu Ser Ala Ser Leu Leu Thr Met Phe Trp Arg 165	170	175
Ala Ala Leu Pro Ser Thr His Ile Pro Val Leu Pro Gly Lys Gln Gly 180	185	190
Glu Ser Thr Glu Arg Glu Leu Leu Glu Leu Arg Thr Lys Val Ser Lys 195	200	205
Gln Glu Gln Leu Leu Gln Ser Thr Thr Glu His Leu Lys Asn Ala Asn 210	215	220
Gln Gln Lys Glu Ser Met Glu Gln Phe Ile Val Ser Val Thr Arg Thr 225	230	235 240
His Asp Val Leu Lys Lys Ala Arg Thr Asn Leu Glu Val Lys Ser Leu 245	250	255
Arg Ala Leu Pro Cys Thr Pro Ala Leu 260	265	

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            1              5              10

gcg gcg tcc cta gcg ggc ttc gcc ggg gtg gcg tct ctg ggg cct ggg      96
Ala Ala Ser Leu Ala Gly Phe Ala Gly Val Ala Ser Leu Gly Pro Gly
            15              20              25

gac ccc cgc cgc gcc gct gac ccg cgc cct ctg ccc cca gcg ctg tgc      144
Asp Pro Arg Arg Ala Ala Asp Pro Arg Pro Leu Pro Pro Ala Leu Cys
            30              35              40

ttc gcc gtg agc cgc tcg ctg ctg ctg acg tgc ctg gtg ccg gcc gcg      192
Phe Ala Val Ser Arg Ser Leu Leu Leu Thr Cys Leu Val Pro Ala Ala
            45              50              55              60

ctg ctg ggc ctg cgc tac tac tac agc cgc aag gtg atc cgc gcc tac      240
Leu Leu Gly Leu Arg Tyr Tyr Tyr Ser Arg Lys Val Ile Arg Ala Tyr
            65              70              75

ctg gag tgc gcg ctg cac acg gac atg gcg gac atc gag cag tac tac      288
Leu Glu Cys Ala Leu His Thr Asp Met Ala Asp Ile Glu Gln Tyr Tyr
            80              85              90

atg aag ccg ccc ggt gtg tcc ctg acc gcc cta tcc cct gca ggc tcc      336
Met Lys Pro Pro Gly Val Ser Leu Thr Ala Leu Ser Pro Ala Gly Ser
            95              100              105

tgc ttc tgg gtg gcc gtg ctg gat ggc aac gtg gtg ggc att gtg gct      384
Cys Phe Trp Val Ala Val Leu Asp Gly Asn Val Val Gly Ile Val Ala
            110              115              120

gca ccg gcc cac gag gag gac aac acg gtg gag ctg ctg ccg atg tct      432
Ala Arg Ala His Glu Glu Asp Asn Thr Val Glu Leu Leu Arg Met Ser
            125              130              135              140

gtg gac tca cgt ttc cga ggc aag ggc atc gcc aag gcg ctg ggc ccg      480
Val Asp Ser Arg Phe Arg Gly Lys Gly Ile Ala Lys Ala Leu Gly Arg
            145              150              155

aag gtg ctg gag ttc gcc gtg gtg cac aac tac tcc gcg gtg gtg ctg      528
Lys Val Leu Glu Phe Ala Val Val His Asn Tyr Ser Ala Val Val Leu
            160              165              170

ggc acg acg gcc gtc aag gtg gcc gcc cac aag ctc tac gag tcg ctg      576
Gly Thr Thr Ala Val Lys Val Ala Ala His Lys Leu Tyr Glu Ser Leu
            175              180              185

ggc ttc aga cac atg ggc gcc agt gac cac tac gtg ctg ccg ggc atg      624

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Gly Phe Arg His Met Gly Ala Ser Asp His Tyr Val Leu Pro Gly Met  
 190 195 200

acc ctc tcg ctg gct gag cgc ctc ttc ttc cag gtc cgc tac cac cgc 672  
 Thr Leu Ser Leu Ala Glu Arg Leu Phe Phe Gln Val Arg Tyr His Arg  
 205 210 215 220

tac cgc ctg cag ctg cgc gag gag tgaccgccgc cgctcgcccg 716  
 Tyr Arg Leu Gln Leu Arg Glu Glu  
 225

ccccccccc cggccgcctt 736

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Ala Ala Asp Pro Arg Pro Leu Pro Pro Ala Leu Cys Phe Ala Val Ser  
 35 40 45

Arg Ser Leu Leu Leu Thr Cys Leu Val Pro Ala Ala Leu Leu Gly Leu  
 50 55 60

Arg Tyr Tyr Tyr Ser Arg Lys Val Ile Arg Ala Tyr Leu Glu Cys Ala  
 65 70 75 80

Leu His Thr Asp Met Ala Asp Ile Glu Gln Tyr Tyr Met Lys Pro Pro  
 85 90 95

Gly Val Ser Leu Thr Ala Leu Ser Pro Ala Gly Ser Cys Phe Trp Val  
 100 105 110

Ala Val Leu Asp Gly Asn Val Val Gly Ile Val Ala Ala Arg Ala His  
 115 120 125

Glu Glu Asp Asn Thr Val Glu Leu Leu Arg Met Ser Val Asp Ser Arg  
 130 135 140

Phe Arg Gly Lys Gly Ile Ala Lys Ala Leu Gly Arg Lys Val Leu Glu  
 145 150 155 160

Phe Ala Val Val His Asn Tyr Ser Ala Val Val Leu Gly Thr Thr Ala  
 165 170 175

Val Lys Val Ala Ala His Lys Leu Tyr Glu Ser Leu Gly Phe Arg His  
 180 185 190

Met Gly Ala Ser Asp His Tyr Val Leu Pro Gly Met Thr Leu Ser Leu  
 195 200 205

Ala Glu Arg Leu Phe Phe Gln Val Arg Tyr His Arg Tyr Arg Leu Gln  
 210 215 220

Leu Arg Glu Glu  
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<213> Homo sapiens

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<222>(19)..(1228)

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Tyr Leu Val Phe Ala Val Cys Phe Val Phe Thr Pro Asn Glu Phe His
      15          20          25

gcg gcg ggg ctc acg gtg cag aac ctg ctg tcg ggc tgg ctg ggc agc 147
Ala Ala Gly Leu Thr Val Gln Asn Leu Leu Ser Gly Trp Leu Gly Ser
      30          35          40

gag gac gcc gcc ttc gtg ccc ttc cac ttg cgc cgc acg gcc gcc acg 195
Glu Asp Ala Ala Phe Val Pro Phe His Leu Arg Arg Thr Ala Ala Thr
      45          50          55

ctg ttg tgc cac tcg ctg ctg ccg ctc ggt gag gct gct cgg gcc ggc 243
Leu Leu Cys His Ser Leu Leu Pro Leu Gly Glu Ala Ala Arg Ala Gly
      60          65          70          75

cgg ccg cat cct ctc ctg cgc agg gct tgc tgg gag gtc agg agg agg 291
Arg Pro His Pro Leu Leu Arg Arg Ala Cys Trp Glu Val Arg Arg Arg
      80          85          90

cct ccg cca gct ccc cga ggc ccc gaa agc gcc tgg gcg cag ctg ggg 339
Pro Pro Pro Ala Pro Arg Gly Pro Glu Ser Ala Trp Ala Gln Leu Gly
      95          100          105

aga ggc gcc ggt cct cat cca gag gga ccg cgg cgt ggg ctg agc gcg 387
Arg Gly Ala Gly Pro His Pro Glu Gly Pro Arg Arg Gly Leu Ser Ala
      110          115          120

ctt agg ggt gcc gcc ggc ctg gcc tgg cgg ctc ttc ctg ctg ctg gcc 435
Leu Arg Gly Ala Ala Gly Leu Ala Trp Arg Leu Phe Leu Leu Leu Ala
      125          130          135

gtg acc ctc ccc tcc atc gcc tgc atc ctg atc tac tac tgg tcc cgt 483
Val Thr Leu Pro Ser Ile Ala Cys Ile Leu Ile Tyr Tyr Trp Ser Arg
      140          145          150          155

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gac cgg tgg gcc tgc cac cca ctg gcg cgc acc ctg gcc ctc tac gcc	531
Asp Arg Trp Ala Cys His Pro Leu Ala Arg Thr Leu Ala Leu Tyr Ala	
160 165 170	
ctc cca cag tct ggc tgg cag gct gtt gcc tcc tct gtc aac act gag	579
Leu Pro Gln Ser Gly Trp Gln Ala Val Ala Ser Ser Val Asn Thr Glu	
175 180 185	
ttc cgg cgg att gac aag ttt gcc acc ggt gca cca ggt gcc cgt gtg	627
Phe Arg Arg Ile Asp Lys Phe Ala Thr Gly Ala Pro Gly Ala Arg Val	
190 195 200	
att gtg aca gac acg tgg gtg atg aag gta acc acc tac cga gtg cac	675
Ile Val Thr Asp Thr Trp Val Met Lys Val Thr Thr Tyr Arg Val His	
205 210 215	
gtg gcc cag cag cag gac gtg cac ctg act gtg acg gag tct cgg cag	723
Val Ala Gln Gln Gln Asp Val His Leu Thr Val Thr Glu Ser Arg Gln	
220 225 230 235	
cat gag ctc tcg cca gac tcg aac ttg ccc gtg cag ctc ctc acc atc	771
His Glu Leu Ser Pro Asp Ser Asn Leu Pro Val Gln Leu Leu Thr Ile	
240 245 250	
cgt gtg gcc agc acc aac cct gct gtg cag gcc ttt gac atc agg ctg	819
Arg Val Ala Ser Thr Asn Pro Ala Val Gln Ala Phe Asp Ile Arg Leu	
255 260 265	
aac tcc act gag tac ggg gag ctc tgc gag aag ctc cgg gca ccc atc	867
Asn Ser Thr Glu Tyr Gly Glu Leu Cys Glu Lys Leu Arg Ala Pro Ile	
270 275 280	
cgc agg gca gcc cat gtg gtc atc cac cag agc ctg ggc gac ctg ttc	915
Arg Arg Ala Ala His Val Val Ile His Gln Ser Leu Gly Asp Leu Phe	
285 290 295	
ctg gag aca ttt gcc tcc ctg gta gag gtc aac ccg gcc tac tca gtg	963
Leu Glu Thr Phe Ala Ser Leu Val Glu Val Asn Pro Ala Tyr Ser Val	
300 305 310 315	
ccc agc agc cag gtg ggg ggc ctg gag gcc tgc ata ggc tgc atg cag	1011
Pro Ser Ser Gln Val Gly Gly Leu Glu Ala Cys Ile Gly Cys Met Gln	
320 325 330	
aca cgt gcc agc gtg aag ctg gtg aag acc tgc cag gag gca gcc aca	1059
Thr Arg Ala Ser Val Lys Leu Val Lys Thr Cys Gln Glu Ala Ala Thr	
335 340 345	
ggc gag tgc cag cag tgt tac tgc cgc ccc atg tgg tgc ctc acc tgc	1107
Gly Glu Cys Gln Gln Cys Tyr Cys Arg Pro Met Trp Cys Leu Thr Cys	
350 355 360	
atg ggc aag tgg ttc gcc agc cgc cag gac ccc ctg cgc cct gac acc	1155
Met Gly Lys Trp Phe Ala Ser Arg Gln Asp Pro Leu Arg Pro Asp Thr	
365 370 375	

tgg ctg gcc agc cgc gtg ccc tgc ccc acc tgc cgc gca cgc ttc tgc 1203  
 Trp Leu Ala Ser Arg Val Pro Cys Pro Thr Cys Arg Ala Arg Phe Cys  
 380 385 390 395

atc ctg gat gtg tgc acc gtg cgc tga 1230  
 Ile Leu Asp Val Cys Thr Val Arg  
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<212>PRT

<213> Homo sapiens

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 20 25 30

Val Gln Asn Leu Leu Ser Gly Trp Leu Gly Ser Glu Asp Ala Ala Phe  
 35 40 45

Val Pro Phe His Leu Arg Arg Thr Ala Ala Thr Leu Leu Cys His Ser  
 50 55 60

Leu Leu Pro Leu Gly Glu Ala Ala Arg Ala Gly Arg Pro His Pro Leu  
 65 70 75 80

Leu Arg Arg Ala Cys Trp Glu Val Arg Arg Arg Pro Pro Pro Ala Pro  
 85 90 95

Arg Gly Pro Glu Ser Ala Trp Ala Gln Leu Gly Arg Gly Ala Gly Pro  
 100 105 110

His Pro Glu Gly Pro Arg Arg Gly Leu Ser Ala Leu Arg Gly Ala Ala  
 115 120 125

Gly Leu Ala Trp Arg Leu Phe Leu Leu Leu Ala Val Thr Leu Pro Ser  
 130 135 140

Ile Ala Cys Ile Leu Ile Tyr Tyr Trp Ser Arg Asp Arg Trp Ala Cys  
 145 150 155 160

His Pro Leu Ala Arg Thr Leu Ala Leu Tyr Ala Leu Pro Gln Ser Gly  
 165 170 175

Trp Gln Ala Val Ala Ser Ser Val Asn Thr Glu Phe Arg Arg Ile Asp  
 180 185 190

Lys Phe Ala Thr Gly Ala Pro Gly Ala Arg Val Ile Val Thr Asp Thr  
 195 200 205

Trp Val Met Lys Val Thr Thr Tyr Arg Val His Val Ala Gln Gln Gln  
 210 215 220

Asp Val His Leu Thr Val Thr Glu Ser Arg Gln His Glu Leu Ser Pro

225                      230                      235                      240  
 Asp Ser Asn Leu Pro Val Gln Leu Leu Thr Ile Arg Val Ala Ser Thr  
                                  245                      250                      255  
 Asn Pro Ala Val Gln Ala Phe Asp Ile Arg Leu Asn Ser Thr Glu Tyr  
                                  260                      265                      270  
 Gly Glu Leu Cys Glu Lys Leu Arg Ala Pro Ile Arg Arg Ala Ala His  
                                  275                      280                      285  
 Val Val Ile His Gln Ser Leu Gly Asp Leu Phe Leu Glu Thr Phe Ala  
                                  290                      295                      300  
 Ser Leu Val Glu Val Asn Pro Ala Tyr Ser Val Pro Ser Ser Gln Val  
 305                                   310                      315                      320  
 Gly Gly Leu Glu Ala Cys Ile Gly Cys Met Gln Thr Arg Ala Ser Val  
                                  325                      330                      335  
 Lys Leu Val Lys Thr Cys Gln Glu Ala Ala Thr Gly Glu Cys Gln Gln  
                                  340                      345                      350  
 Cys Tyr Cys Arg Pro Met Trp Cys Leu Thr Cys Met Gly Lys Trp Phe  
                                  355                      360                      365  
 Ala Ser Arg Gln Asp Pro Leu Arg Pro Asp Thr Trp Leu Ala Ser Arg  
                                  370                      375                      380  
 Val Pro Cys Pro Thr Cys Arg Ala Arg Phe Cys Ile Leu Asp Val Cys  
 385                                   390                      395                      400  
 Thr Val Arg

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 <212>DNA  
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                                  1                      5                      10  
 cca gaa gcc aaa tgg aca gct ggt gaa ccc caa caa ctt ctg gaa gaa      95  
 Pro Glu Ala Lys Trp Thr Ala Gly Glu Pro Gln Gln Leu Leu Glu Glu  
                                  15                      20                      25  
 ccc gaa aga tgt gtg cgc cca cgc cca tgg cct ctc agg gcc cag gcc      143  
 Pro Glu Arg Cys Val Arg Pro Arg Pro Trp Pro Leu Arg Ala Gln Ala  
                                  30                      35                      40                      45  
 tgg gac gtg acc acc act aac tgc tca gcc aat atc aac ttg acc cac      191

Trp	Asp	Val	Thr	Thr	Thr	Asn	Cys	Ser	Ala	Asn	Ile	Asn	Leu	Thr	His		
				50					55					60			
cag	ccc	tgg	ttc	cag	gtc	ctg	gag	ccg	cag	ttc	cgg	cag	ttt	ctc	ttc	239	
Gln	Pro	Trp	Phe	Gln	Val	Leu	Glu	Pro	Gln	Phe	Arg	Gln	Phe	Leu	Phe		
			65					70					75				
tac	cgc	cac	tgc	cgc	tac	ttc	ccc	atg	ctg	ctg	aac	cac	ccg	gag	aag	287	
Tyr	Arg	His	Cys	Arg	Tyr	Phe	Pro	Met	Leu	Leu	Asn	His	Pro	Glu	Lys		
			80					85				90					
tgc	agg	ggc	gat	gtc	tac	ctg	ctg	gtg	gtt	gtc	aag	tcg	gtc	atc	acg	335	
Cys	Arg	Gly	Asp	Val	Tyr	Leu	Leu	Val	Val	Val	Lys	Ser	Val	Ile	Thr		
		95				100					105						
cag	cac	gac	cgc	cgc	gag	gcc	atc	cgc	cag	acc	tgg	gcg	cga	gcg	gca	383	
Gln	His	Asp	Arg	Arg	Glu	Ala	Ile	Arg	Gln	Thr	Trp	Ala	Arg	Ala	Ala		
110					115					120					125		
gtc	cgc	ggg	tgg	ggg	ccg	agc	gcc	gtg	cgc	acc	ctc	ttc	ctg	ctg	ggc	431	
Val	Arg	Gly	Trp	Gly	Pro	Ser	Ala	Val	Arg	Thr	Leu	Phe	Leu	Leu	Gly		
				130					135					140			
acg	gcc	tcc	aag	cag	gag	gag	cgc	acg	cac	tac	cag	cag	ctg	ctg	gcc	479	
Thr	Ala	Ser	Lys	Gln	Glu	Glu	Arg	Thr	His	Tyr	Gln	Gln	Leu	Leu	Ala		
			145					150					155				
tac	gaa	gac	gcc	ctc	tac	ggc	gac	atc	ctg	cag	tgg	ggc	ttt	ctc	gac	527	
Tyr	Glu	Asp	Ala	Leu	Tyr	Gly	Asp	Ile	Leu	Gln	Trp	Gly	Phe	Leu	Asp		
		160					165					170					
acc	ttc	ttc	aac	ctg	acc	ctc	aag	gag	atc	cac	ttc	ctc	aag	tgg	ctg	575	
Thr	Phe	Phe	Asn	Leu	Thr	Leu	Lys	Glu	Ile	His	Phe	Leu	Lys	Trp	Leu		
			175				180				185						
gac	atc	tac	tgc	ccc	cac	gtc	ccc	ttc	att	ttc	aaa	ggc	gac	gat	gac	623	
Asp	Ile	Tyr	Cys	Pro	His	Val	Pro	Phe	Ile	Phe	Lys	Gly	Asp	Asp	Asp		
190					195					200					205		
gtc	ttc	gtc	aac	ccc	acc	aac	ctg	cta	gaa	ttt	ctg	gct	gac	cgg	cag	671	
Val	Phe	Val	Asn	Pro	Thr	Asn	Leu	Leu	Glu	Phe	Leu	Ala	Asp	Arg	Gln		
				210					215					220			
cca	cag	gaa	aac	ctg	ttc	gtg	ggc	gat	gtc	ctg	cag	cac	gct	cgg	ccc	719	
Pro	Gln	Glu	Asn	Leu	Phe	Val	Gly	Asp	Val	Leu	Gln	His	Ala	Arg	Pro		
			225					230					235				
att	cgc	agg	aaa	gac	aac	aaa	tac	tac	atc	ccg	ggg	gcc	ctg	tac	ggc	767	
Ile	Arg	Arg	Lys	Asp	Asn	Lys	Tyr	Tyr	Ile	Pro	Gly	Ala	Leu	Tyr	Gly		
			240				245					250					
aag	gcc	agc	tat	ccg	ccg	tat	gca	ggc	ggc	ggc	ggc	ttc	ctc	atg	gcc	815	
Lys	Ala	Ser	Tyr	Pro	Pro	Tyr	Ala	Gly	Gly	Gly	Gly	Phe	Leu	Met	Ala		
			255			260					265						
ggc	agc	ctg	gcc	cgg	cgc	ctg	cac	cat	gcc	tgc	gac	acc	ctg	gag	ctc	863	
Gly	Ser	Leu	Ala	Arg	Arg	Leu	His	His	Ala	Cys	Asp	Thr	Leu	Glu	Leu		

270	275	280	285	
tac ccg atc gac gac gtc ttt ctg ggc atg tgc ctg gag gtg ctg ggc				911
Tyr Pro Ile Asp Asp Val Phe Leu Gly Met Cys Leu Glu Val Leu Gly				
	290	295	300	
gtg cag ccc acg gcc cac gag ggc ttc aag act ttc ggc atc tcc cgg				959
Val Gln Pro Thr Ala His Glu Gly Phe Lys Thr Phe Gly Ile Ser Arg				
	305	310	315	
aac cgc aac agc cgc atg aac aag gag ccg tgc ttt ttc cgc gcc atg				1007
Asn Arg Asn Ser Arg Met Asn Lys Glu Pro Cys Phe Phe Arg Ala Met				
	320	325	330	
ctc gtg gtg cac aag ctg ctg ccc cct gag ctg ctc gcc atg tgg ggg				1055
Leu Val Val His Lys Leu Leu Pro Pro Glu Leu Leu Ala Met Trp Gly				
	335	340	345	
ctg gtg cac agc aat ctc acc tgc tcc cgc aag ctc cag gtg ctc				1100
Leu Val His Ser Asn Leu Thr Cys Ser Arg Lys Leu Gln Val Leu				
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tgaccccgag cgggctacta ggacaggcca gggcac				1136

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Cys Val Arg Pro Arg Pro Trp Pro Leu Arg Ala Gln Ala Trp Asp Val
35 40 45

Thr Thr Thr Asn Cys Ser Ala Asn Ile Asn Leu Thr His Gln Pro Trp
50 55 60

Phe Gln Val Leu Glu Pro Gln Phe Arg Gln Phe Leu Phe Tyr Arg His
65 70 75 80

Cys Arg Tyr Phe Pro Met Leu Leu Asn His Pro Glu Lys Cys Arg Gly
85 90 95

Asp Val Tyr Leu Leu Val Val Val Lys Ser Val Ile Thr Gln His Asp
100 105 110

Arg Arg Glu Ala Ile Arg Gln Thr Trp Ala Arg Ala Ala Val Arg Gly
115 120 125

Trp Gly Pro Ser Ala Val Arg Thr Leu Phe Leu Leu Gly Thr Ala Ser
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130	135	140	
Lys Gln Glu Glu Arg Thr His Tyr Gln Gln Leu Leu Ala Tyr Glu Asp			
145	150	155	160
Ala Leu Tyr Gly Asp Ile Leu Gln Trp Gly Phe Leu Asp Thr Phe Phe			
	165	170	175
Asn Leu Thr Leu Lys Glu Ile His Phe Leu Lys Trp Leu Asp Ile Tyr			
	180	185	190
Cys Pro His Val Pro Phe Ile Phe Lys Gly Asp Asp Asp Val Phe Val			
	195	200	205
Asn Pro Thr Asn Leu Leu Glu Phe Leu Ala Asp Arg Gln Pro Gln Glu			
	210	215	220
Asn Leu Phe Val Gly Asp Val Leu Gln His Ala Arg Pro Ile Arg Arg			
	225	230	235
Lys Asp Asn Lys Tyr Tyr Ile Pro Gly Ala Leu Tyr Gly Lys Ala Ser			
	245	250	255
Tyr Pro Pro Tyr Ala Gly Gly Gly Gly Phe Leu Met Ala Gly Ser Leu			
	260	265	270
Ala Arg Arg Leu His His Ala Cys Asp Thr Leu Glu Leu Tyr Pro Ile			
	275	280	285
Asp Asp Val Phe Leu Gly Met Cys Leu Glu Val Leu Gly Val Gln Pro			
	290	295	300
Thr Ala His Glu Gly Phe Lys Thr Phe Gly Ile Ser Arg Asn Arg Asn			
	305	310	315
Ser Arg Met Asn Lys Glu Pro Cys Phe Phe Arg Ala Met Leu Val Val			
	325	330	335
His Lys Leu Leu Pro Pro Glu Leu Leu Ala Met Trp Gly Leu Val His			
	340	345	350
Ser Asn Leu Thr Cys Ser Arg Lys Leu Gln Val Leu			
	355	360	

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	Met	Asp	Leu	Glu	Ala	Ala	Lys	Asn	Gly	Thr	Ala		
	1				5						10		



tgg cgc ccc acg agc gcg gag ggc gac ttt gaa ctg ggc atc agc agc	96
Trp Arg Pro Thr Ser Ala Glu Gly Asp Phe Glu Leu Gly Ile Ser Ser	
15 20 25	
aaa caa aaa agg aaa aaa acg aag aca gtg aaa atg att gga gta tta	144
Lys Gln Lys Arg Lys Lys Thr Lys Thr Val Lys Met Ile Gly Val Leu	
30 35 40	
aca ttg ttt cga tac tcc gat tgg cag gat aaa ttg ttt atg tcg ctg	192
Thr Leu Phe Arg Tyr Ser Asp Trp Gln Asp Lys Leu Phe Met Ser Leu	
45 50 55	
ggt acc atc atg gcc ata gct cac gga tca ggt ctc ccc ctc atg atg	240
Gly Thr Ile Met Ala Ile Ala His Gly Ser Gly Leu Pro Leu Met Met	
60 65 70 75	
ata gta ttt gga gag atg act gac aaa ttt gtt gat act gca gga aac	288
Ile Val Phe Gly Glu Met Thr Asp Lys Phe Val Asp Thr Ala Gly Asn	
80 85 90	
ttc tcc ttt cca gtg aac ttt tcc ttg tcg ctg cta aat cca ggc aaa	336
Phe Ser Phe Pro Val Asn Phe Ser Leu Ser Leu Leu Asn Pro Gly Lys	
95 100 105	
att ctg gaa gaa gaa atg act aga tat gca tat tac tac tca gga ttg	384
Ile Leu Glu Glu Glu Met Thr Arg Tyr Ala Tyr Tyr Tyr Ser Gly Leu	
110 115 120	
ggt gct gga gtt ctt gtt gct gcc tat ata caa gtt tca ttt tgg act	432
Gly Ala Gly Val Leu Val Ala Ala Tyr Ile Gln Val Ser Phe Trp Thr	
125 130 135	
ttg gca gct ggt cga cag atc agg aaa att agg cag aag ttt ttt cat	480
Leu Ala Ala Gly Arg Gln Ile Arg Lys Ile Arg Gln Lys Phe Phe His	
140 145 150 155	
gct att cta cga cag gaa ata gga tgg ttt gac atc aat gac acc act	528
Ala Ile Leu Arg Gln Glu Ile Gly Trp Phe Asp Ile Asn Asp Thr Thr	
160 165 170	
gaa ctc aat acg cgg cta aca gat gac atc tcc aaa atc agt gaa gga	576
Glu Leu Asn Thr Arg Leu Thr Asp Asp Ile Ser Lys Ile Ser Glu Gly	
175 180 185	
att ggt gac aag gtt gga atg ttc ttt caa gca gta gcc acg ttt ttt	624
Ile Gly Asp Lys Val Gly Met Phe Phe Gln Ala Val Ala Thr Phe Phe	
190 195 200	
gca gga ttc ata gtg gga ttc atc aga gga tgg aag ctc acc ctt gtg	672
Ala Gly Phe Ile Val Gly Phe Ile Arg Gly Trp Lys Leu Thr Leu Val	
205 210 215	
ata atg gcc atc agc cct att cta gga ctc tct gca gcc gtt tgg gca	720
Ile Met Ala Ile Ser Pro Ile Leu Gly Leu Ser Ala Ala Val Trp Ala	
220 225 230 235	
aag ata ctc tcg gca ttt agt gac aaa gaa cta gct gct tat gca aaa	768

Lys Ile Leu Ser Ala Phe Ser Asp Lys Glu Leu Ala Ala Tyr Ala Lys	
240 245 250	
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 Lys Lys Phe Asp Asp Glu Asn Phe Val Leu Asn Tyr Thr Gly Pro Gly  
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 Ile Leu Ser Val Glu Asn Ala Gly Pro Asn Thr Asn Gly Ser Gln Phe  
 100 105 110  
 Phe Ile Cys Thr Ala Met Ser Glu Trp Leu Asp Gly Met Gln Val Val  
 115 120 125

Phe Gly Lys Gly Arg Lys Val Ser Ile Val Glu Ala Met Glu Cys Phe  
130 135 140

Gly Ser Thr Asn Gly Lys Thr Ser Lys Lys Ile Thr Ile Ala Asp Cys  
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Gly Gln Leu

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<211>887

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(14)..(830)

<400>307

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Met Ala Ala Ile Val Lys Pro Pro Glu Pro Ile Pro	
1 5 10	
tta aaa tgg tta aca gat aag cca gtt tgg ata gaa caa tgg cca ctg	97
Leu Lys Trp Leu Thr Asp Lys Pro Val Trp Ile Glu Gln Trp Pro Leu	
15 20 25	
agt aaa gag aaa ctg gag gct tta gag gat ttg gtt act gaa caa ttc	145
Ser Lys Glu Lys Leu Glu Ala Leu Glu Asp Leu Val Thr Glu Gln Phe	
30 35 40	
tca ata atc att ttc caa aaa gtg aac cta cac agc atg aaa gta tca	193
Ser Ile Ile Ile Phe Gln Lys Val Asn Leu His Ser Met Lys Val Ser	
45 50 55 60	
cac att tcc tta gtg cag cta acc ctg tgt gac cag ggc ttc aac aca	241
His Ile Ser Leu Val Gln Leu Thr Leu Cys Asp Gln Gly Phe Asn Thr	
65 70 75	
tac cac tgt gac cac aac cta gcc atg agc atg agc ctc acc agc atg	289
Tyr His Cys Asp His Asn Leu Ala Met Ser Met Ser Leu Thr Ser Met	
80 85 90	
tcc aaa atg cta aaa tac aac aat ggc agt gaa gac atc act aca tgg	337
Ser Lys Met Leu Lys Tyr Asn Asn Gly Ser Glu Asp Ile Thr Thr Trp	
95 100 105	
agg gct gaa ggt act atg gat ctc ttg gtg cta gaa ttt gaa gca cta	385
Arg Ala Glu Gly Thr Met Asp Leu Leu Val Leu Glu Phe Glu Ala Leu	
110 115 120	
aat caa gag aac ttt gtg gac tgt gaa ttg aag tta atg act cta gat	433
Asn Gln Glu Asn Phe Val Asp Cys Glu Leu Lys Leu Met Thr Leu Asp	
125 130 135 140	
gtt gag caa ctt gaa att cca gaa caa gag tac agc tgt gta ata aag	481
Val Glu Gln Leu Glu Ile Pro Glu Gln Glu Tyr Ser Cys Val Ile Lys	
145 150 155	

atg cat tct agt gaa ttt gtt cat ata tgc caa gat ctc agt cat att 529  
 Met His Ser Ser Glu Phe Val His Ile Cys Gln Asp Leu Ser His Ile  
 160 165 170  
 gga gag tct gct ata att tct tgt gca aaa gat gga gtg aat ttt tct 577  
 Gly Glu Ser Ala Ile Ile Ser Cys Ala Lys Asp Gly Val Asn Phe Ser  
 175 180 185  
 gca aat gga gaa ctt gga cat gga aac att gcc aca att gcc caa aca 625  
 Ala Asn Gly Glu Leu Gly His Gly Asn Ile Ala Thr Ile Ala Gln Thr  
 190 195 200  
 agt aat tac aat aaa gaa gag gag gct gtt gcc ata atg atg aat ggg 673  
 Ser Asn Tyr Asn Lys Glu Glu Glu Ala Val Ala Ile Met Met Asn Gly  
 205 210 215 220  
 cca gtt cag cta act ttt gca cta agt tac tta aat ttc ttt ata aca 721  
 Pro Val Gln Leu Thr Phe Ala Leu Ser Tyr Leu Asn Phe Phe Ile Thr  
 225 230 235  
 ggc act cca ctc tct cag atg cac ccc ttg ctg gag agt ata aga ttg 769  
 Gly Thr Pro Leu Ser Gln Met His Pro Leu Leu Glu Ser Ile Arg Leu  
 240 245 250  
 ccg gat atg gaa cat tta aag tat tat ttg gct ccc aaa att gag gat 817  
 Pro Asp Met Glu His Leu Lys Tyr Tyr Leu Ala Pro Lys Ile Glu Asp  
 255 260 265  
 gaa aaa gga ttt tagaaattct tagaatccaa gaaaataaaa ctaagctctt 869  
 Glu Lys Gly Phe  
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 tgaaaattgc ttctgaga 887

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<211>272

<212>PRT

<213> Homo sapiens

<400>308

Met Ala Ala Ile Val Lys Pro Pro Glu Pro Ile Pro Leu Lys Trp Leu  
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 Thr Asp Lys Pro Val Trp Ile Glu Gln Trp Pro Leu Ser Lys Glu Lys  
 20 25 30  
 Leu Glu Ala Leu Glu Asp Leu Val Thr Glu Gln Phe Ser Ile Ile Ile  
 35 40 45  
 Phe Gln Lys Val Asn Leu His Ser Met Lys Val Ser His Ile Ser Leu  
 50 55 60  
 Val Gln Leu Thr Leu Cys Asp Gln Gly Phe Asn Thr Tyr His Cys Asp  
 65 70 75 80

His Asn Leu Ala Met Ser Met Ser Leu Thr Ser Met Ser Lys Met Leu  
85 90 95

Thr Met Asp Leu Leu Val Leu Glu Phe Glu Ala Leu Asn Gln Glu Asn  
115 120 125

Glu Ile Pro Glu Gln Glu Tyr Ser Cys Val Ile Lys Met His Ser Ser  
145 150 155 160

Ile Ile Ser Cys Ala Lys Asp Gly Val Asn Phe Ser Ala Asn Gly Glu  
180 185 190

Lys Glu Glu Glu Ala Val Ala Ile Met Met Asn Gly Pro Val Gln Leu  
210 215 220

Ser Gln Met His Pro Leu Leu Glu Ser Ile Arg Leu Pro Asp Met Glu  
245 250 255

<210>309

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Gly Met Trp Lys Ala Ala Leu Leu Gly Asp Asn Ala Leu Arg Ala Ile  
15 20 25 30

ttc ccc tcc atc atc ggg cac ccc cgg cac cag ggc gtg atg gtg ggc 143  
Phe Pro Ser Ile Ile Gly His Pro Arg His Gln Gly Val Met Val Gly  
35 40 45

atg ggc cag aag gac tcc tac gtg ggc gac cag gcc cag agc aag tgc	191
Met Gly Gln Lys Asp Ser Tyr Val Gly Asp Gln Ala Gln Ser Lys Cys	
50 55 60	
ggc atc ctg acc ctg aag tac ccc atc aag cat ggc atc gtc aca aac	239
Gly Ile Leu Thr Leu Lys Tyr Pro Ile Lys His Gly Ile Val Thr Asn	
65 70 75	
tgg gac gac atg gag aag atc tgg cac cat gtt ttc tac aac gag ctg	287
Trp Asp Asp Met Glu Lys Ile Trp His His Val Phe Tyr Asn Glu Leu	
80 85 90	
tgc gtg gcc ctg gag gag cag gtg gtg ctg ctg acc gag gcc ccg cta	335
Cys Val Ala Leu Glu Glu Gln Val Val Leu Thr Glu Ala Pro Leu	
95 100 105 110	
aac ccc agg gcc aat agg gag aag atg act cag atc atg ttt aag acc	383
Asn Pro Arg Ala Asn Arg Glu Lys Met Thr Gln Ile Met Phe Lys Thr	
115 120 125	
ttc aac acc cag gcc atg tac gtg gcc att cag gcc gtg ctg acc ctc	431
Phe Asn Thr Gln Ala Met Tyr Val Ala Ile Gln Ala Val Leu Thr Leu	
130 135 140	
cac agc tct ggt tgc acc act ggc att gtc atg gac tct gga gat ggg	479
His Ser Ser Gly Cys Thr Thr Gly Ile Val Met Asp Ser Gly Asp Gly	
145 150 155	
gtc acc cac aca gtg ccc atc tac gag cgc cac acc ctc cct cac acc	527
Val Thr His Thr Val Pro Ile Tyr Glu Arg His Thr Leu Pro His Thr	
160 165 170	
atc ttg cat ctg gac ctg gct ggc cag gac ctt act gac tac ctc atg	575
Ile Leu His Leu Asp Leu Ala Gly Gln Asp Leu Thr Asp Tyr Leu Met	
175 180 185 190	
aag atc cct acc tac cgc agc tat agc ttc aac acc atg gcc aag tgg	623
Lys Ile Pro Thr Tyr Arg Ser Tyr Ser Phe Asn Thr Met Ala Lys Trp	
195 200 205	
aaa atc gtg cgc aac atc aag gag aag cta tgc tat gtc gct ctg gac	671
Lys Ile Val Arg Asn Ile Lys Glu Lys Leu Cys Tyr Val Ala Leu Asp	
210 215 220	
ttc gag gag gag atg gcc act gct gca tcc tcc tcc tcc ctg gag aag	719
Phe Glu Glu Glu Met Ala Thr Ala Ala Ser Ser Ser Leu Glu Lys	
225 230 235	
agc tac gag ctg cct gac agc cag gcc atc att att agc aat gag cgg	767
Ser Tyr Glu Leu Pro Asp Ser Gln Ala Ile Ile Ile Ser Asn Glu Arg	
240 245 250	
ttc cgg tgt ccg gag gca ctg ttc cag cct tcc ttc ctg ggc atg gaa	815
Phe Arg Cys Pro Glu Ala Leu Phe Gln Pro Ser Phe Leu Gly Met Glu	
255 260 265 270	



tcc tgt ggc atc cat gaa agt acc ttc aac tcc atc atg aag tgt gat	863
Ser Cys Gly Ile His Glu Ser Thr Phe Asn Ser Ile Met Lys Cys Asp	
275 280 285	
atg gac atc ccc aaa gac ctg tac gcc aac aca gtg ctg tct ggc gtc	911
Met Asp Ile Pro Lys Asp Leu Tyr Ala Asn Thr Val Leu Ser Gly Val	
290 295 300	
acc acc atg tac cct ggc atc ccc aat agg atg cag aag gag atc act	959
Thr Thr Met Tyr Pro Gly Ile Pro Asn Arg Met Gln Lys Glu Ile Thr	
305 310 315	
gcc ctg gca tcc agc acc atg aag atc aag ata tcg tgc ccc atc gtg	1007
Ala Leu Ala Ser Ser Thr Met Lys Ile Lys Ile Ser Cys Pro Ile Val	
320 325 330	
ccc cca gag tgc aag tac ttt gtg tgg atc ggt ggc tcc atc ctg gcc	1055
Pro Pro Glu Cys Lys Tyr Phe Val Trp Ile Gly Gly Ser Ile Leu Ala	
335 340 345 350	
tca ctg tcc acc ttc cag cag atg tgg att agc aag cag gag tac aac	1103
Ser Leu Ser Thr Phe Gln Gln Met Trp Ile Ser Lys Gln Glu Tyr Asn	
355 360 365	
gag tcg ggc ccc tcc atc atc cac cgc aaa tgg act gcg agc aga tgc	1151
Glu Ser Gly Pro Ser Ile Ile His Arg Lys Trp Thr Ala Ser Arg Cys	
370 375 380	
ata gca ttt gct gca tgg gtt aat tca gaa gta taaatttgcc	1194
Ile Ala Phe Ala Ala Trp Val Asn Ser Glu Val	
385 390	
cctggcaaat gcatatacct catgctagcc tcacgatac	1233

<210>310

<211>393

<212>PRT

<213> Homo sapiens

<400>310

Met Glu Glu Glu Ile Pro Ala Leu Phe Ile Asp Asn Gly Ser Gly Met
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Trp Lys Ala Ala Leu Leu Gly Asp Asn Ala Leu Arg Ala Ile Phe Pro
20 25 30
Ser Ile Ile Gly His Pro Arg His Gln Gly Val Met Val Gly Met Gly
35 40 45
Gln Lys Asp Ser Tyr Val Gly Asp Gln Ala Gln Ser Lys Cys Gly Ile
50 55 60
Leu Thr Leu Lys Tyr Pro Ile Lys His Gly Ile Val Thr Asn Trp Asp
65 70 75 80

Asp	Met	Glu	Lys	Ile	Trp	His	His	Val	Phe	Tyr	Asn	Glu	Leu	Cys	Val	85	90	95	
Ala	Leu	Glu	Glu	Gln	Val	Val	Leu	Leu	Thr	Glu	Ala	Pro	Leu	Asn	Pro	100	105	110	
Arg	Ala	Asn	Arg	Glu	Lys	Met	Thr	Gln	Ile	Met	Phe	Lys	Thr	Phe	Asn	115	120	125	
Thr	Gln	Ala	Met	Tyr	Val	Ala	Ile	Gln	Ala	Val	Leu	Thr	Leu	His	Ser	130	135	140	
Ser	Gly	Cys	Thr	Thr	Gly	Ile	Val	Met	Asp	Ser	Gly	Asp	Gly	Val	Thr	145	150	155	160
His	Thr	Val	Pro	Ile	Tyr	Glu	Arg	His	Thr	Leu	Pro	His	Thr	Ile	Leu	165	170	175	
His	Leu	Asp	Leu	Ala	Gly	Gln	Asp	Leu	Thr	Asp	Tyr	Leu	Met	Lys	Ile	180	185	190	
Pro	Thr	Tyr	Arg	Ser	Tyr	Ser	Phe	Asn	Thr	Met	Ala	Lys	Trp	Lys	Ile	195	200	205	
Val	Arg	Asn	Ile	Lys	Glu	Lys	Leu	Cys	Tyr	Val	Ala	Leu	Asp	Phe	Glu	210	215	220	
Glu	Glu	Met	Ala	Thr	Ala	Ala	Ser	Ser	Ser	Ser	Leu	Glu	Lys	Ser	Tyr	225	230	235	240
Glu	Leu	Pro	Asp	Ser	Gln	Ala	Ile	Ile	Ile	Ser	Asn	Glu	Arg	Phe	Arg	245	250	255	
Cys	Pro	Glu	Ala	Leu	Phe	Gln	Pro	Ser	Phe	Leu	Gly	Met	Glu	Ser	Cys	260	265	270	
Gly	Ile	His	Glu	Ser	Thr	Phe	Asn	Ser	Ile	Met	Lys	Cys	Asp	Met	Asp	275	280	285	
Ile	Pro	Lys	Asp	Leu	Tyr	Ala	Asn	Thr	Val	Leu	Ser	Gly	Val	Thr	Thr	290	295	300	
Met	Tyr	Pro	Gly	Ile	Pro	Asn	Arg	Met	Gln	Lys	Glu	Ile	Thr	Ala	Leu	305	310	315	320
Ala	Ser	Ser	Thr	Met	Lys	Ile	Lys	Ile	Ser	Cys	Pro	Ile	Val	Pro	Pro	325	330	335	
Glu	Cys	Lys	Tyr	Phe	Val	Trp	Ile	Gly	Gly	Ser	Ile	Leu	Ala	Ser	Leu	340	345	350	
Ser	Thr	Phe	Gln	Gln	Met	Trp	Ile	Ser	Lys	Gln	Glu	Tyr	Asn	Glu	Ser	355	360	365	
Gly	Pro	Ser	Ile	Ile	His	Arg	Lys	Trp	Thr	Ala	Ser	Arg	Cys	Ile	Ala	370	375	380	

Phe Ala Ala Trp Val Asn Ser Glu Val  
385 390

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<211>1197

<212>DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(5)..(1178)

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1 5 10	
 gac aaa agc ttc tgg cta acc aga ttc act gaa ctg aag ggc aca ggt	94
Asp Lys Ser Phe Trp Leu Thr Arg Phe Thr Glu Leu Lys Gly Thr Gly	
15 20 25 30	
 tgc aaa gtg ccc caa gat gtc ttg caa aaa ttg ctg gaa tct tta cag	142
Cys Lys Val Pro Gln Asp Val Leu Gln Lys Leu Leu Glu Ser Leu Gln	
35 40 45	
 gag aac cac ttc caa gaa gat gag cag ttt ctg gga gcc gtt atg cca	190
Glu Asn His Phe Gln Glu Asp Glu Gln Phe Leu Gly Ala Val Met Pro	
50 55 60	
 agg ctt cgc att gga atg gat act tgt gcc att tct ttg agg cat ggt	238
Arg Leu Arg Ile Gly Met Asp Thr Cys Ala Ile Ser Leu Arg His Gly	
65 70 75	
 ggg ctt tcc ttg gtt caa acc aca gat tac att tac ccg atc gta gac	286
Gly Leu Ser Leu Val Gln Thr Thr Asp Tyr Ile Tyr Pro Ile Val Asp	
80 85 90	
 gac cct tac atg atg ggc agg ata gca tgt gcc aat gtc ctc agt gac	334
Asp Pro Tyr Met Met Gly Arg Ile Ala Cys Ala Asn Val Leu Ser Asp	
95 100 105 110	
 ctc tat gca atg ggg gtc aca gaa tgt gac aat atg ctg atg ctc ctt	382
Leu Tyr Ala Met Gly Val Thr Glu Cys Asp Asn Met Leu Met Leu Leu	
115 120 125	
 gga gtc agt aat aaa atg acc gac agg gaa agg gat aaa gtg atg cct	430
Gly Val Ser Asn Lys Met Thr Asp Arg Glu Arg Asp Lys Val Met Pro	
130 135 140	
 ctg att atc caa agt ttt aaa gat gca gct gag gaa gca gga atg tct	478
Leu Ile Ile Gln Ser Phe Lys Asp Ala Ala Glu Glu Ala Gly Met Ser	
145 150 155	
 gta atg gtc agc caa aca gta cta aat ccc tgg att gtc ctg gga gga	526
Val Met Val Ser Gln Thr Val Leu Asn Pro Trp Ile Val Leu Gly Gly	
160 165 170	
 gtc act acc act gtc ttc cag ccc aat gaa ttt atc atg cca gac aat	574

Val Thr Thr Thr Val Phe Gln Pro Asn Glu Phe Ile Met Pro Asp Asn	
175 180 185 190	
gca gtg cca ggg gac gtg ctg gtg ttg aca aaa ccc ctg ggg aca cag	622
Ala Val Pro Gly Asp Val Leu Val Leu Thr Lys Pro Leu Gly Thr Gln	
195 200 205	
gtg gca gtg gct gtg cac cag tgg ctg gat att cct ttg aaa tgg aat	670
Val Ala Val Ala Val His Gln Trp Leu Asp Ile Pro Leu Lys Trp Asn	
210 215 220	
aag att aag cta gtg gtc acc gaa gat gta gag ctg gcc aac cag gag	718
Lys Ile Lys Leu Val Val Thr Glu Asp Val Glu Leu Ala Asn Gln Glu	
225 230 235	
gcg atg atg aac atg gtg agg ctc aac agg aca gct gca gga ctc atg	766
Ala Met Met Asn Met Val Arg Leu Asn Arg Thr Ala Ala Gly Leu Met	
240 245 250	
cac acg ttc aat gcc cac atg gcc act gac atc acg ggc ttc ggg att	814
His Thr Phe Asn Ala His Met Ala Thr Asp Ile Thr Gly Phe Gly Ile	
255 260 265 270	
ttg ggc cac gtg cag aac cta gcc aag cag cag agg aac gag gtg tcg	862
Leu Gly His Val Gln Asn Leu Ala Lys Gln Gln Arg Asn Glu Val Ser	
275 280 285	
ttt gta att cac aac ctc ctg gtg ctg gcc aag atg gct gcg gtg agc	910
Phe Val Ile His Asn Leu Leu Val Leu Ala Lys Met Ala Ala Val Ser	
290 295 300	
aag gcc tgc gga aac atg ttc agc ctc atg cat ggg acc tgc ccg gag	958
Lys Ala Cys Gly Asn Met Phe Ser Leu Met His Gly Thr Cys Pro Glu	
305 310 315	
acc tca ggc ggc ctt ctg atc tgt tta cca tgt cag caa gca gct cgg	1006
Thr Ser Gly Gly Leu Leu Ile Cys Leu Pro Cys Gln Gln Ala Ala Arg	
320 325 330	
ttc tgt gca gag ata aag tcc ccc aaa tat agt gaa ggc cac caa gca	1054
Phe Cys Ala Glu Ile Lys Ser Pro Lys Tyr Ser Glu Gly His Gln Ala	
335 340 345 350	
tgg att att ggg att gta gag aag ggc aac cac aca gcc aga atc ata	1102
Trp Ile Ile Gly Ile Val Glu Lys Gly Asn His Thr Ala Arg Ile Ile	
355 360 365	
gac aaa ccc cag atc atc aag gtt gca cca caa gtg gcc act caa aat	1150
Asp Lys Pro Gln Ile Ile Lys Val Ala Pro Gln Val Ala Thr Gln Asn	
370 375 380	
gtg aat ctc aca ccc ggg gcc aca tct taatctagac agaaatagct	1197
Val Asn Leu Thr Pro Gly Ala Thr Ser	
385 390	

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 <213> Homo sapiens

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                     20                    25                    30  
 Val Pro Gln Asp Val Leu Gln Lys Leu Leu Glu Ser Leu Gln Glu Asn  
                     35                    40                    45  
 His Phe Gln Glu Asp Glu Gln Phe Leu Gly Ala Val Met Pro Arg Leu  
                     50                    55                    60  
 Arg Ile Gly Met Asp Thr Cys Ala Ile Ser Leu Arg His Gly Gly Leu  
                     65                    70                    75                    80  
 Ser Leu Val Gln Thr Thr Asp Tyr Ile Tyr Pro Ile Val Asp Asp Pro  
                     85                    90                    95  
 Tyr Met Met Gly Arg Ile Ala Cys Ala Asn Val Leu Ser Asp Leu Tyr  
                     100                    105                    110  
 Ala Met Gly Val Thr Glu Cys Asp Asn Met Leu Met Leu Leu Gly Val  
                     115                    120                    125  
 Ser Asn Lys Met Thr Asp Arg Glu Arg Asp Lys Val Met Pro Leu Ile  
                     130                    135                    140  
 Ile Gln Ser Phe Lys Asp Ala Ala Glu Glu Ala Gly Met Ser Val Met  
                     145                    150                    155                    160  
 Val Ser Gln Thr Val Leu Asn Pro Trp Ile Val Leu Gly Gly Val Thr  
                     165                    170                    175  
 Thr Thr Val Phe Gln Pro Asn Glu Phe Ile Met Pro Asp Asn Ala Val  
                     180                    185                    190  
 Pro Gly Asp Val Leu Val Leu Thr Lys Pro Leu Gly Thr Gln Val Ala  
                     195                    200                    205  
 Val Ala Val His Gln Trp Leu Asp Ile Pro Leu Lys Trp Asn Lys Ile  
                     210                    215                    220  
 Lys Leu Val Val Thr Glu Asp Val Glu Leu Ala Asn Gln Glu Ala Met  
                     225                    230                    235                    240  
 Met Asn Met Val Arg Leu Asn Arg Thr Ala Ala Gly Leu Met His Thr  
                     245                    250                    255  
 Phe Asn Ala His Met Ala Thr Asp Ile Thr Gly Phe Gly Ile Leu Gly

260	265	270	
His Val Gln Asn Leu Ala Lys	Gln Gln Arg Asn Glu	Val Ser Phe Val	
275	280	285	
Ile His Asn Leu Leu Val	Leu Ala Lys Met Ala Ala	Val Ser Lys Ala	
290	295	300	
Cys Gly Asn Met Phe Ser	Leu Met His Gly Thr Cys	Pro Glu Thr Ser	
305	310	315	320
Gly Gly Leu Leu Ile Cys	Leu Pro Cys Gln Gln Ala	Ala Arg Phe Cys	
325	330	335	
Ala Glu Ile Lys Ser Pro	Lys Tyr Ser Glu Gly His	Gln Ala Trp Ile	
340	345	350	
Ile Gly Ile Val Glu Lys	Gly Asn His Thr Ala Arg	Ile Ile Asp Lys	
355	360	365	
Pro Gln Ile Ile Lys Val	Ala Pro Gln Val Ala Thr	Gln Asn Val Asn	
370	375	380	
Leu Thr Pro Gly Ala Thr	Ser		
385	390		
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Met Gly His Arg Gln Val Thr Pro Ala Leu Ile Phe Ala Ile Thr			
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gtt gct aca atc ggc tct ttc cag ttt ggc tac aac act ggg gtc atc			95
Val Ala Thr Ile Gly Ser Phe Gln Phe Gly Tyr Asn Thr Gly Val Ile			
20 25 30			
aat gct cct gag acg gtg cag atc ata aag gaa ttt atc aat aaa act			143
Asn Ala Pro Glu Thr Val Gln Ile Ile Lys Glu Phe Ile Asn Lys Thr			
35 40 45			
ttg acg gac aag gca aat gcc cct ccc tct gag gtg ctg ctc acg aat			191
Leu Thr Asp Lys Ala Asn Ala Pro Pro Ser Glu Val Leu Leu Thr Asn			
50 55 60			
ctc tgg tcc ttg tct gtg gcc ata ttt tcc gtc ggg ggt atg atc ggc			239
Leu Trp Ser Leu Ser Val Ala Ile Phe Ser Val Gly Gly Met Ile Gly			
65 70 75			
tcc ttt tcc gtc gga ctc ttt gtt aac cgc ttt ggc agg agg cgc aat			287
Ser Phe Ser Val Gly Leu Phe Val Asn Arg Phe Gly Arg Arg Arg Asn			

80	85	90	95	
tca atg ctg att gtc aac ctg ttg gct gcc act ggt ggc tgc ctt atg				335
Ser Met Leu Ile Val Asn Leu Leu Ala Ala Thr Gly Gly Cys Leu Met				
100		105	110	
gga ctg tgt aaa ata gct gag tca gtt gaa atg ctg atc ctg ggc cgc				383
Gly Leu Cys Lys Ile Ala Glu Ser Val Glu Met Leu Ile Leu Gly Arg				
115		120	125	
ttg gtt att ggc ctc ttc tgc gga ctc tgc aca ggt ttt gtg ccc atg				431
Leu Val Ile Gly Leu Phe Cys Gly Leu Cys Thr Gly Phe Val Pro Met				
130		135	140	
tac att gga gag atc tcg cct act gcc ctg agg ggt gcc ttt ggc act				479
Tyr Ile Gly Glu Ile Ser Pro Thr Ala Leu Arg Gly Ala Phe Gly Thr				
145		150	155	
ctc aac cag ctg ggc ata gtt att gga att ctg gtg gcc cag gta atc				527
Leu Asn Gln Leu Gly Ile Val Ile Gly Ile Leu Val Ala Gln Val Ile				
160		165	170	175
ttt ggt ctg gaa ctc atc ctt ggg tct gaa gag cta tgg ccg gtg cta				575
Phe Gly Leu Glu Leu Ile Leu Gly Ser Glu Glu Leu Trp Pro Val Leu				
180		185	190	
tta ggc ttt acc atc ctt cca gct atc ctg caa agt gca gcc ctt cca				623
Leu Gly Phe Thr Ile Leu Pro Ala Ile Leu Gln Ser Ala Ala Leu Pro				
195		200	205	
tgt tgc cct gaa agt ccc aga ttt ttg ctc att aac aga aaa aaa gag				671
Cys Cys Pro Glu Ser Pro Arg Phe Leu Leu Ile Asn Arg Lys Lys Glu				
210		215	220	
gag aat gct acg cgg gtc ctc cag cgg ttg tgg ggc acc cag gat gta				719
Glu Asn Ala Thr Arg Val Leu Gln Arg Leu Trp Gly Thr Gln Asp Val				
225		230	235	
tcc caa gac atc cag gag atg aaa gat gag agt gca agg atg tca caa				767
Ser Gln Asp Ile Gln Glu Met Lys Asp Glu Ser Ala Arg Met Ser Gln				
240		245	250	255
gaa aag caa gtc acc gtg ctg gag ctc ttt aga gtg tcc agc tac cga				815
Glu Lys Gln Val Thr Val Leu Glu Leu Phe Arg Val Ser Ser Tyr Arg				
260		265	270	
cag ccc atc atc att tcc att gtg ctc cag ctc tct cag cag ctc tct				863
Gln Pro Ile Ile Ile Ser Ile Val Leu Gln Leu Ser Gln Gln Leu Ser				
275		280	285	
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Gly Ile Asn Ala Val Val Phe Tyr Tyr Ser Thr Gly Ile Phe Lys Asp				
290		295	300	
gca ggt gtt caa cag ccc atc tat gcc acc atc agc gcg ggt gtg gtt				959
Ala Gly Val Gln Gln Pro Ile Tyr Ala Thr Ile Ser Ala Gly Val Val				
305		310	315	

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Asn Thr Ile Phe Thr Leu Leu Ser Val Val Ala Gln Met Leu Phe Ser	
320 325 330 335	
tgg aaa gga aaa ctg aag ttt cat gtc ata act gtt tct ttg tta tta	1055
Trp Lys Gly Lys Leu Lys Phe His Val Ile Thr Val Ser Leu Leu Leu	
340 345 350	
aag ctg ggt tac act gtc ttt aaa ttt aat ctt ctg tgt tcc ttc ctc	1103
Lys Leu Gly Tyr Thr Val Phe Lys Phe Asn Leu Leu Cys Ser Phe Leu	
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Leu Gln Asn His Tyr Asn Gly Met Ser Phe Val Cys Ile Gly Ala Ile	
370 375 380	
ttg gtc ttt gtg gcc tgt ttt gaa att gga cca ggc ccc att ccc tgg	1199
Leu Val Phe Val Ala Cys Phe Glu Ile Gly Pro Gly Pro Ile Pro Trp	
385 390 395	
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Phe Ile Val Ala Glu Leu Phe Ser Gln Gly Pro Arg Pro Ala Ala Met	
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Ala Val Ala Gly Cys Ser Asn Trp Thr Ser Asn Phe Leu Val Gly Leu	
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ctc ttc ccc tct gct gct tac tat tta gga gcc tac gtt ttt att atc	1343
Leu Phe Pro Ser Ala Ala Tyr Tyr Leu Gly Ala Tyr Val Phe Ile Ile	
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Phe Thr Gly Phe Leu Ile Thr Phe Leu Ala Phe Thr Phe Phe Lys Val	
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cct gag acc cgt ggc agg act ttt gag gat atc aca cgg gcc ttt gaa	1439
Pro Glu Thr Arg Gly Arg Thr Phe Glu Asp Ile Thr Arg Ala Phe Glu	
465 470 475	
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Gly Gln Ala His Gly Ala Asp Arg Ser Gly Lys Asp Gly Val Met Gly	
480 485 490 495	
atg aac agc atc gag cct gct aag gag acc acc acc aat gtc	1529
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35 40 45

Thr Asp Lys Ala Asn Ala Pro Pro Ser Glu Val Leu Leu Thr Asn Leu  
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Trp Ser Leu Ser Val Ala Ile Phe Ser Val Gly Gly Met Ile Gly Ser  
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Phe Ser Val Gly Leu Phe Val Asn Arg Phe Gly Arg Arg Arg Asn Ser  
85 90 95

Met Leu Ile Val Asn Leu Leu Ala Ala Thr Gly Gly Cys Leu Met Gly  
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Leu Cys Lys Ile Ala Glu Ser Val Glu Met Leu Ile Leu Gly Arg Leu  
115 120 125

Val Ile Gly Leu Phe Cys Gly Leu Cys Thr Gly Phe Val Pro Met Tyr  
130 135 140

Ile Gly Glu Ile Ser Pro Thr Ala Leu Arg Gly Ala Phe Gly Thr Leu  
145 150 155 160

Asn Gln Leu Gly Ile Val Ile Gly Ile Leu Val Ala Gln Val Ile Phe  
165 170 175

Gly Leu Glu Leu Ile Leu Gly Ser Glu Glu Leu Trp Pro Val Leu Leu  
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Gly Phe Thr Ile Leu Pro Ala Ile Leu Gln Ser Ala Ala Leu Pro Cys  
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Cys Pro Glu Ser Pro Arg Phe Leu Leu Ile Asn Arg Lys Lys Glu Glu  
210 215 220

Asn Ala Thr Arg Val Leu Gln Arg Leu Trp Gly Thr Gln Asp Val Ser  
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Gln Asp Ile Gln Glu Met Lys Asp Glu Ser Ala Arg Met Ser Gln Glu  
245 250 255

Lys Gln Val Thr Val Leu Glu Leu Phe Arg Val Ser Ser Tyr Arg Gln  
260 265 270

Pro Ile Ile Ile Ser Ile Val Leu Gln Leu Ser Gln Gln Leu Ser Gly  
275 280 285

Ile Asn Ala Val Val Phe Tyr Tyr Ser Thr Gly Ile Phe Lys Asp Ala

290	295	300	
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Thr Ile Phe Thr Leu Leu Ser Val Val Ala Gln Met Leu Phe Ser Trp			
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Lys Gly Lys Leu Lys Phe His Val Ile Thr Val Ser Leu Leu Leu Lys			
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Leu Gly Tyr Thr Val Phe Lys Phe Asn Leu Leu Cys Ser Phe Leu Leu			
	355	360	365
Gln Asn His Tyr Asn Gly Met Ser Phe Val Cys Ile Gly Ala Ile Leu			
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Ile Val Ala Glu Leu Phe Ser Gln Gly Pro Arg Pro Ala Ala Met Ala			
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Phe Pro Ser Ala Ala Tyr Tyr Leu Gly Ala Tyr Val Phe Ile Ile Phe			
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Thr Gly Phe Leu Ile Thr Phe Leu Ala Phe Thr Phe Phe Lys Val Pro			
	450	455	460
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Gly Ile Gly Ile Leu Leu Trp Leu Leu Val Ile Pro Leu Val Cys Cys	
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atc gtc atg gtc tac tgc cac ctg gcc ggg cgc att ccg ctc acc ggc	246
Ile Val Met Val Tyr Cys His Leu Ala Gly Arg Ile Pro Leu Thr Gly	
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Tyr Ala Tyr Gln Trp Ser Ser Arg Leu Ala Gly Asn His Phe Gly Trp	
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Phe Thr Gly Trp Val Ala Phe Thr Ser Phe Val Ala Gly Thr Ala Ala	
85 90 95 100	
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Thr Ser Ala Ala Ile Gly Thr Val Phe Ala Pro Glu Ile Trp Ala Asn	
105 110 115	
ccg aca cag ggt cag atc cag ggc ctg agc atc ggc gcc acg ctg gtg	438
Pro Thr Gln Gly Gln Ile Gln Gly Leu Ser Ile Gly Ala Thr Leu Val	
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Val Gly Leu Leu Asn Ile Cys Gly Ile Arg Leu Ala Thr Arg Ile Asn	
135 140 145	
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Asp Ile Gly Ala Ile Ile Glu Ile Ile Gly Thr Val Leu Leu Ala Ile	
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185 190 195	
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215 220 225	
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ctg ctg acg ctg att gcc gcg tac ctg gcc tat aaa aac ggc cgg atg Leu Leu Thr Leu Ile Ala Ala Tyr Leu Ala Tyr Lys Asn Gly Arg Met 375 380 385	1206
ccg ggg gcg cct gcg ggc gtg ttc agc ctg ggc cgc tgg ttg ctg ccg Pro Gly Ala Pro Ala Gly Val Phe Ser Leu Gly Arg Trp Leu Leu Pro 390 395 400	1254
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His	Phe	Gly	Trp	Phe	Thr	Gly	Trp	Val	Ala	Phe	Thr	Ser	Phe	Val	Ala
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Gly	Thr	Ala	Ala	Thr	Ser	Ala	Ala	Ile	Gly	Thr	Val	Phe	Ala	Pro	Glu
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Ile	Trp	Ala	Asn	Pro	Thr	Gln	Gly	Gln	Ile	Gln	Gly	Leu	Ser	Ile	Gly
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Thr	Gln	Gly	Val	Ala	Ile	Leu	Thr	Ser	Ala	Gln	Pro	Val	Ser	Gly	Gly
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Thr	Leu	Ser	Phe	Thr	Thr	Ile	Ala	Leu	Ala	Thr	Leu	Leu	Pro	Val	Ser
		195					200					205			
Val	Leu	Leu	Gly	Trp	Glu	Gly	Ala	Ala	Asp	Leu	Ser	Glu	Glu	Thr	Lys
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Asp	Pro	Arg	Arg	Ala	Ala	Pro	Arg	Ala	Met	Ile	Arg	Ala	Val	Leu	Val
225					230					235					240
Ser	Ser	Val	Leu	Gly	Phe	Val	Val	Phe	Ala	Leu	Leu	Ser	Ile	Ala	Ile
				245					250					255	
Pro	Gly	Ser	Val	Ser	Glu	Leu	Leu	Ser	His	Ser	Glu	Asn	Pro	Val	Ile
			260					265					270		
Asn	Ile	Val	Arg	Leu	Gln	Leu	Gly	Asn	Ala	Ala	Gly	Val	Gly	Met	Ile
	275						280					285			
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Tyr	Cys	Thr	Tyr	Leu	Leu	Thr	Leu	Ile	Ala	Ala	Tyr	Leu	Ala	Tyr	Lys
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Trp	Leu	Leu	Pro	Met	Ile	Ile	Leu	Gly	Gly	Leu	Trp	Ala	Ile	Ala	Val
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			420					425					430		
Thr	Gly	Val	Thr	Leu	Gly	Val	Gly	Val	Leu	Trp	Trp	Leu	Phe	Ser	Leu
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Phe Ser Met Val Ser Ile Asn Thr Gly Val Val Thr Leu Phe Ala Asp
  15             20             25             30

ccg ttc aac cgc gtc ggg ggc atc ggc atc ctc ctg tgg ctg ttg gtg      142
Pro Phe Asn Arg Val Gly Gly Ile Gly Ile Leu Leu Trp Leu Leu Val
          35             40             45

atc ccg ctg gtg tgc tgc atc gtc atg gtc tac tgc cac ctg gcc ggg      190
Ile Pro Leu Val Cys Cys Ile Val Met Val Tyr Cys His Leu Ala Gly
          50             55             60

cgc att ccg ctc acc ggc tac gcc tac caa tgg tcc agc cga ttg gcg      238
Arg Ile Pro Leu Thr Gly Tyr Ala Tyr Gln Trp Ser Ser Arg Leu Ala
        65             70             75

ggc aat cac ttc ggc tgg ttt acc ggc tgg gtg gcg ttc acc tcg ttt      286
Gly Asn His Phe Gly Trp Phe Thr Gly Trp Val Ala Phe Thr Ser Phe
      80             85             90

gtc gcc ggt aca gcc gcc acc tcg gcg gcc atc ggt acg gtg ttc gca      334
Val Ala Gly Thr Ala Ala Thr Ser Ala Ala Ile Gly Thr Val Phe Ala
      95             100             105             110

ccg gag atc tgg gcc aac ccg aca cag ggt cag atc cag ggc ctg agc      382
Pro Glu Ile Trp Ala Asn Pro Thr Gln Gly Gln Ile Gln Gly Leu Ser
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atc ggc gcc acg ctg gtg gtg ggc ttg ctg aat atc tgc ggg att cgc      430
Ile Gly Ala Thr Leu Val Val Gly Leu Leu Asn Ile Cys Gly Ile Arg
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ctg gcc acc cgg atc aac gac atc ggc gcg atc atc gaa atc atc ggc      478
Leu Ala Thr Arg Ile Asn Asp Ile Gly Ala Ile Ile Glu Ile Ile Gly
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acg gta ctg ctg gcg att gcg ttg ttc ttc ggg gtg ttt ttc ttc ttt      526
Thr Val Leu Leu Ala Ile Ala Leu Phe Phe Gly Val Phe Phe Phe Phe
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Ala Ile Pro Gly Ser Val Ser Glu Leu Leu Ser Arg Ser Glu Asn Pro	
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Val Ile Asn Ile Val Arg Leu Gln Leu Gly Asn Ala Ala Gly Val Gly	
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acc tac tac tgc act tac ctg ctg acg ctg att gcc gcg tac ctg gcc	1150
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Tyr Lys Asn Gly Arg Met Pro Gly Ala Pro Ala Gly Val Phe Ser Leu	
385 390 395	



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gcg gtg atc ctg acc ctg agc gtg ccg gaa gaa agc cac act ggc gct 1294  
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Leu Val Cys Cys Ile Val Met Val Tyr Cys His Leu Ala Gly Arg Ile  
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Pro Leu Thr Gly Tyr Ala Tyr Gln Trp Ser Ser Arg Leu Ala Gly Asn  
 65 70 75 80

His Phe Gly Trp Phe Thr Gly Trp Val Ala Phe Thr Ser Phe Val Ala  
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Gly Thr Ala Ala Thr Ser Ala Ala Ile Gly Thr Val Phe Ala Pro Glu  
 100 105 110

Ile Trp Ala Asn Pro Thr Gln Gly Gln Ile Gln Gly Leu Ser Ile Gly  
 115 120 125

Ala Thr Leu Val Val Gly Leu Leu Asn Ile Cys Gly Ile Arg Leu Ala  
 130 135 140

Thr Arg Ile Asn Asp Ile Gly Ala Ile Ile Glu Ile Ile Gly Thr Val  
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Ser Ile Leu Asn Ser Asp Leu Ala Asn Leu Gly Ala Glu Cys Ser Arg
 10           15           20           25

atg cta gac tct ggg gcc gat tat ctg cac ctg gac gta atg gac ggg      147
Met Leu Asp Ser Gly Ala Asp Tyr Leu His Leu Asp Val Met Asp Gly
           30           35           40

cat ttt gtt ccc aac atc acc ttt ggt cac cct gtg gtg gaa agc ctt      195
His Phe Val Pro Asn Ile Thr Phe Gly His Pro Val Val Glu Ser Leu
           45           50           55

cga aag cag cta ggc cag gac cct ttc ttt gac atg cac atg atg gtg      243
Arg Lys Gln Leu Gly Gln Asp Pro Phe Phe Asp Met His Met Met Val
           60           65           70

tcc aag cca gaa cag tgg gta aag cca atg gct gta gca gga gcc aat      291
Ser Lys Pro Glu Gln Trp Val Lys Pro Met Ala Val Ala Gly Ala Asn
           75           80           85

cag tac acc ttt cat ctc gag gct act gag aac cca ggg gct ttg att      339
Gln Tyr Thr Phe His Leu Glu Ala Thr Glu Asn Pro Gly Ala Leu Ile
 90           95           100           105

aaa gac att cgg gag aat ggg atg aag gtt ggc ctt gcc atc aaa cca      387
Lys Asp Ile Arg Glu Asn Gly Met Lys Val Gly Leu Ala Ile Lys Pro
           110           115           120

gga acc tca gtt gag tat ttg gca cca tgg gct aat cag ata gat atg      435
Gly Thr Ser Val Glu Tyr Leu Ala Pro Trp Ala Asn Gln Ile Asp Met
           125           130           135

gcc ttg gtt atg aca gtg gaa ccg ggg ttt gga ggg cag aaa ttc atg      483
Ala Leu Val Met Thr Val Glu Pro Gly Phe Gly Gly Gln Lys Phe Met
           140           145           150

gaa gat atg atg cca aag gtt cac tgg ttg agg acc cag ttc cca tct      531
Glu Asp Met Met Pro Lys Val His Trp Leu Arg Thr Gln Phe Pro Ser
           155           160           165

ttg gat ata gag gtc gat ggt gga gta ggt cct gac act gtc cat aaa      579
Leu Asp Ile Glu Val Asp Gly Gly Val Gly Pro Asp Thr Val His Lys

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170	175	180	185	
tgt gca gag gca gga gct aac atg att gtg tct ggc agt gct att atg				627
Cys Ala Glu Ala Gly Ala Asn Met Ile Val Ser Gly Ser Ala Ile Met				
	190	195	200	
agg agt gaa gac ccc aga tct gtg atc aat cta tta aga aat gtt tgc				675
Arg Ser Glu Asp Pro Arg Ser Val Ile Asn Leu Leu Arg Asn Val Cys				
	205	210	215	
tca gaa gct gct cag aaa cgt tct ctt gat cgg tgaaaccata				718
Ser Glu Ala Ala Gln Lys Arg Ser Leu Asp Arg				
	220	225		
aggagcccag tgttcctggt catgaaatct cccttttact ggaaaacagg				768
aatattgact accaaatcac aatgcaattg aagccgtact gcttttttga				818
gcagttattc attccagtga ttaaaactga ttgtgcagaa taataaaaaa				868
aaaaaaaa				876
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Tyr Leu His Leu Asp Val Met Asp Gly His Phe Val Pro Asn Ile Thr				
35 40 45				
Phe Gly His Pro Val Val Glu Ser Leu Arg Lys Gln Leu Gly Gln Asp				
50 55 60				
Pro Phe Phe Asp Met His Met Met Val Ser Lys Pro Glu Gln Trp Val				
65 70 75 80				
Lys Pro Met Ala Val Ala Gly Ala Asn Gln Tyr Thr Phe His Leu Glu				
85 90 95				
Ala Thr Glu Asn Pro Gly Ala Leu Ile Lys Asp Ile Arg Glu Asn Gly				
100 105 110				

Met Lys Val Gly Leu Ala Ile Lys Pro Gly Thr Ser Val Glu Tyr Leu  
115 120 125

Ala Pro Trp Ala Asn Gln Ile Asp Met Ala Leu Val Met Thr Val Glu  
130 135 140

Pro Gly Phe Gly Gly Gln Lys Phe Met Glu Asp Met Met Pro Lys Val  
145 150 155 160

His Trp Leu Arg Thr Gln Phe Pro Ser Leu Asp Ile Glu Val Asp Gly  
165 170 175

Gly Val Gly Pro Asp Thr Val His Lys Cys Ala Glu Ala Gly Ala Asn  
180 185 190

Met Ile Val Ser Gly Ser Ala Ile Met Arg Ser Glu Asp Pro Arg Ser  
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Val Ile Asn Leu Leu Arg Asn Val Cys Ser Glu Ala Ala Gln Lys Arg  
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Ser Leu Asp Arg  
225

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tcc atc ctc aac agc gac ctg gcc aat tta ggg gcc gag tgc ctc cgg 99  
Ser Ile Leu Asn Ser Asp Leu Ala Asn Leu Gly Ala Glu Cys Leu Arg  
10 15 20 25

atg cta gac tct ggg gcc gat tat ctg cac ctg gac gta atg gac ggg 147  
Met Leu Asp Ser Gly Ala Asp Tyr Leu His Leu Asp Val Met Asp Gly  
30 35 40

cat ttt gtt ccc aac atc acc ttt ggt cac cct gtg gta gaa agc ctt 195  
His Phe Val Pro Asn Ile Thr Phe Gly His Pro Val Val Glu Ser Leu  
45 50 55

cga aag cag cta ggc cag gac cct ttc ttt gac atg cac atg atg gtg 243  
Arg Lys Gln Leu Gly Gln Asp Pro Phe Phe Asp Met His Met Met Val  
60 65 70

tcc aag cca gaa cag tgg gta aag cca atg gct gta gca gga gcc aat 291  
Ser Lys Pro Glu Gln Trp Val Lys Pro Met Ala Val Ala Gly Ala Asn  
75 80 85

cag tac acc ttt cat ctc gag gct act gag aac cca ggg gct ttg att 339  
 Gln Tyr Thr Phe His Leu Glu Ala Thr Glu Asn Pro Gly Ala Leu Ile  
 90 95 100 105  
  
 aaa gac att cgg gag aat ggg atg aag gtt ggc ctt gcc atc aaa cca 387  
 Lys Asp Ile Arg Glu Asn Gly Met Lys Val Gly Leu Ala Ile Lys Pro  
 110 115 120  
  
 gga acc tca gtt gag tat ttg gca cca tgg gct aat cag ata gat atg 435  
 Gly Thr Ser Val Glu Tyr Leu Ala Pro Trp Ala Asn Gln Ile Asp Met  
 125 130 135  
  
 gcc ttg gtt atg aca gtg gaa ccg ggg ttt gga ggg cag aaa ttc atg 483  
 Ala Leu Val Met Thr Val Glu Pro Gly Phe Gly Gly Gln Lys Phe Met  
 140 145 150  
  
 gaa gat atg atg cca aag gtt cac tgg ttg agg acc cag ttc cca tct 531  
 Glu Asp Met Met Pro Lys Val His Trp Leu Arg Thr Gln Phe Pro Ser  
 155 160 165  
  
 ttg gat ata gag gtc gat ggt gga gta ggt cct gac act gtc cat aaa 579  
 Leu Asp Ile Glu Val Asp Gly Gly Val Gly Pro Asp Thr Val His Lys  
 170 175 180 185  
  
 tgt gca gag gca gga gct aac atg att gtg tct ggc agt gct att atg 627  
 Cys Ala Glu Ala Gly Ala Asn Met Ile Val Ser Gly Ser Ala Ile Met  
 190 195 200  
  
 agg agt gaa gac ccc aga tct gtg atc aat cta tta aga aat gtt tgc 675  
 Arg Ser Glu Asp Pro Arg Ser Val Ile Asn Leu Leu Arg Asn Val Cys  
 205 210 215  
  
 tca gaa gct gct cag aaa cgt tct ctt gat cgg tgaaaccata 718  
 Ser Glu Ala Ala Gln Lys Arg Ser Leu Asp Arg  
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 aggagcccag tg 730

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<211>228

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<213> Homo sapiens

<400>322

Met Ala Ser Gly Cys Lys Ile Gly Pro Ser Ile Leu Asn Ser Asp Leu  
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Ala Asn Leu Gly Ala Glu Cys Leu Arg Met Leu Asp Ser Gly Ala Asp  
 20 25 30

Tyr Leu His Leu Asp Val Met Asp Gly His Phe Val Pro Asn Ile Thr  
 35 40 45

Phe Gly His Pro Val Val Glu Ser Leu Arg Lys Gln Leu Gly Gln Asp  
 50 55 60

Pro Phe Phe Asp Met His Met Met Val Ser Lys Pro Glu Gln Trp Val  
 65 70 75 80  
 Lys Pro Met Ala Val Ala Gly Ala Asn Gln Tyr Thr Phe His Leu Glu  
 85 90 95  
 Ala Thr Glu Asn Pro Gly Ala Leu Ile Lys Asp Ile Arg Glu Asn Gly  
 100 105 110  
 Met Lys Val Gly Leu Ala Ile Lys Pro Gly Thr Ser Val Glu Tyr Leu  
 115 120 125  
 Ala Pro Trp Ala Asn Gln Ile Asp Met Ala Leu Val Met Thr Val Glu  
 130 135 140  
 Pro Gly Phe Gly Gly Gln Lys Phe Met Glu Asp Met Met Pro Lys Val  
 145 150 155 160  
 His Trp Leu Arg Thr Gln Phe Pro Ser Leu Asp Ile Glu Val Asp Gly  
 165 170 175  
 Gly Val Gly Pro Asp Thr Val His Lys Cys Ala Glu Ala Gly Ala Asn  
 180 185 190  
 Met Ile Val Ser Gly Ser Ala Ile Met Arg Ser Glu Asp Pro Arg Ser  
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 Ser Leu Asp Arg  
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 Met Gln Asp Arg Leu His Ile Leu Glu Asp Leu  
 5 10

aat atg ctc tac att cgg cag atg gca ctc agc ctg gag gac acg gag 148  
 Asn Met Leu Tyr Ile Arg Gln Met Ala Leu Ser Leu Glu Asp Thr Glu  
 15 20 25

ttg cag agg aag cta gac cat gag atc cgg atg agg gaa ggg gcc tgt 196  
 Leu Gln Arg Lys Leu Asp His Glu Ile Arg Met Arg Glu Gly Ala Cys

30	35	40	
aag ctg ctg gca gcc tgc tcc cag cga gag cag gct ctg gag gcc acc			244
Lys Leu Leu Ala Ala Cys Ser Gln Arg Glu Gln Ala Leu Glu Ala Thr			
45	50	55	
aag agc ctg cta gtg tgc aac agc cgc atc ctc agc tac atg ggc gag			292
Lys Ser Leu Leu Val Cys Asn Ser Arg Ile Leu Ser Tyr Met Gly Glu			
60	65	70	75
ctg cag cgg cgc aag gag gcg cag gtg ctg ggg aag aca agc cgg cgg			340
Leu Gln Arg Arg Lys Glu Ala Gln Val Leu Gly Lys Thr Ser Arg Arg			
80	85	90	
cct tct gac agt ggc ccg ccc gct gag cgc tcc ccc tgc cgc ggc cgg			388
Pro Ser Asp Ser Gly Pro Pro Ala Glu Arg Ser Pro Cys Arg Gly Arg			
95	100	105	
gtc tgc atc tct gac ctc cgg att cca ctc atg tgg aag gac aca gaa			436
Val Cys Ile Ser Asp Leu Arg Ile Pro Leu Met Trp Lys Asp Thr Glu			
110	115	120	
tat ttc aag aac aaa gac ttg cac cgc tgg gct gtg ttc ctg ctg ctg			484
Tyr Phe Lys Asn Lys Asp Leu His Arg Trp Ala Val Phe Leu Leu Leu			
125	130	135	
cag ctg ggg gaa cac atc cag gac aca gag atg atc cta gtg gac agg			532
Gln Leu Gly Glu His Ile Gln Asp Thr Glu Met Ile Leu Val Asp Arg			
140	145	150	155
acc ctc aca gac atc tcc ttt cag agc aat gtg ctc ttc gct gag gcg			580
Thr Leu Thr Asp Ile Ser Phe Gln Ser Asn Val Leu Phe Ala Glu Ala			
160	165	170	
ggg cca gac ttt gaa ctg cgg tta gag ctg tat ggg gcc tgt gtg gaa			628
Gly Pro Asp Phe Glu Leu Arg Leu Glu Leu Tyr Gly Ala Cys Val Glu			
175	180	185	
gaa gag ggg gcc ctg act ggc ggc ccc aag agg ctt gcc acc aaa ctc			676
Glu Glu Gly Ala Leu Thr Gly Gly Pro Lys Arg Leu Ala Thr Lys Leu			
190	195	200	
agc agc tcc ctg ggc cgc tcc tca ggg agg cgt gtc cgg gca tcg ctg			724
Ser Ser Ser Leu Gly Arg Ser Ser Gly Arg Arg Val Arg Ala Ser Leu			
205	210	215	
gac agt gct ggg ggt tca ggg agc agt ccc atc ttg ctc ccc acc cca			772
Asp Ser Ala Gly Gly Ser Gly Ser Ser Pro Ile Leu Leu Pro Thr Pro			
220	225	230	235
gtt gtt ggt ggt cct cgt tac cac ctc ttg gct cac acc aca ctc acc			820
Val Val Gly Gly Pro Arg Tyr His Leu Leu Ala His Thr Thr Leu Thr			
240	245	250	
ctg gca gca gtg caa gat gga ttc cgc aca cat gac ctc acc ctt gcc			868
Leu Ala Ala Val Gln Asp Gly Phe Arg Thr His Asp Leu Thr Leu Ala			
255	260	265	



agt cat gag gag aac cct gcc tgg ctg ccc ctt tat ggt agc gtg tgt	916
Ser His Glu Glu Asn Pro Ala Trp Leu Pro Leu Tyr Gly Ser Val Cys	
270 275 280	
tgc cgt ctg gca gct cag cct ctc tgc atg act cag ccc act gca agt	964
Cys Arg Leu Ala Ala Gln Pro Leu Cys Met Thr Gln Pro Thr Ala Ser	
285 290 295	
ggg acc ctc agg gtg cag caa gct ggg gag atg cag aac tgg gca caa	1012
Gly Thr Leu Arg Val Gln Gln Ala Gly Glu Met Gln Asn Trp Ala Gln	
300 305 310 315	
gtg cat gga gtt ctg aaa ggc aca aac ctc ttc tgt tac cgg caa cct	1060
Val His Gly Val Leu Lys Gly Thr Asn Leu Phe Cys Tyr Arg Gln Pro	
320 325 330	
gag gat gca gac act ggg gaa gag ccg ctg ctt act att gct gtc aac	1108
Glu Asp Ala Asp Thr Gly Glu Glu Pro Leu Leu Thr Ile Ala Val Asn	
335 340 345	
aag gag act cga gtc cgg gca ggg gag ctg gac cag gct cta gga cgg	1156
Lys Glu Thr Arg Val Arg Ala Gly Glu Leu Asp Gln Ala Leu Gly Arg	
350 355 360	
ccc ttc acc cta agc atc agt aac cag tat ggg gat gat gag gtg aca	1204
Pro Phe Thr Leu Ser Ile Ser Asn Gln Tyr Gly Asp Asp Glu Val Thr	
365 370 375	
cac acc ctt cag aca gaa agt cgg gaa gca ctg cag agc tgg atg gag	1252
His Thr Leu Gln Thr Glu Ser Arg Glu Ala Leu Gln Ser Trp Met Glu	
380 385 390 395	
gct ctg tgg cag ctt ttc ttt gac atg agc caa tgg aag cag tgc tgt	1300
Ala Leu Trp Gln Leu Phe Phe Asp Met Ser Gln Trp Lys Gln Cys Cys	
400 405 410	
gat gaa atc atg aaa att gaa act cct gct ccc cgg aaa cca ccc caa	1348
Asp Glu Ile Met Lys Ile Glu Thr Pro Ala Pro Arg Lys Pro Pro Gln	
415 420 425	
gca ctg gca aag cag ggg tcc ttg tac cat gag atg gct att gag ccg	1396
Ala Leu Ala Lys Gln Gly Ser Leu Tyr His Glu Met Ala Ile Glu Pro	
430 435 440	
ctg gat gac atc gca gcg gtg aca gac atc ctg acc cag cgg gag ggc	1444
Leu Asp Asp Ile Ala Ala Val Thr Asp Ile Leu Thr Gln Arg Glu Gly	
445 450 455	
gca agg ctg gag aca ccc cca ccc tgg ctg gca atg ttt aca gac cag	1492
Ala Arg Leu Glu Thr Pro Pro Pro Trp Leu Ala Met Phe Thr Asp Gln	
460 465 470 475	
cct gcc ctg cct aac ccc tgc tcg cct gcc tca gtg gcc cca gcc cca	1540
Pro Ala Leu Pro Asn Pro Cys Ser Pro Ala Ser Val Ala Pro Ala Pro	
480 485 490	

gac tgg acc cac ccc ctg ccc tgg ggg aga ccc cga acc ttt tcc ctg 1588  
 Asp Trp Thr His Pro Leu Pro Trp Gly Arg Pro Arg Thr Phe Ser Leu  
 495 500 505  
  
 gat gct gtc ccc cca gac cac tcc cct agg gct cgc tcg gtt gcc ccc 1636  
 Asp Ala Val Pro Pro Asp His Ser Pro Arg Ala Arg Ser Val Ala Pro  
 510 515 520  
  
 ctc cca cct cag cga tcc cca cgg acc aga ggc ctc tgc agc aaa ggc 1684  
 Leu Pro Pro Gln Arg Ser Pro Arg Thr Arg Gly Leu Cys Ser Lys Gly  
 525 530 535  
  
 caa cct cgc act tgg ctc cag tca cca gtg tgagagagaa aggtgctggc 1734  
 Gln Pro Arg Thr Trp Leu Gln Ser Pro Val  
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 20 25 30  
  
 Asp His Glu Ile Arg Met Arg Glu Gly Ala Cys Lys Leu Leu Ala Ala  
 35 40 45  
  
 Cys Ser Gln Arg Glu Gln Ala Leu Glu Ala Thr Lys Ser Leu Leu Val  
 50 55 60  
  
 Cys Asn Ser Arg Ile Leu Ser Tyr Met Gly Glu Leu Gln Arg Arg Lys  
 65 70 75 80  
  
 Glu Ala Gln Val Leu Gly Lys Thr Ser Arg Arg Pro Ser Asp Ser Gly  
 85 90 95  
  
 Pro Pro Ala Glu Arg Ser Pro Cys Arg Gly Arg Val Cys Ile Ser Asp  
 100 105 110  
  
 Leu Arg Ile Pro Leu Met Trp Lys Asp Thr Glu Tyr Phe Lys Asn Lys  
 115 120 125  
  
 Asp Leu His Arg Trp Ala Val Phe Leu Leu Leu Gln Leu Gly Glu His  
 130 135 140  
  
 Ile Gln Asp Thr Glu Met Ile Leu Val Asp Arg Thr Leu Thr Asp Ile  
 145 150 155 160  
  
 Ser Phe Gln Ser Asn Val Leu Phe Ala Glu Ala Gly Pro Asp Phe Glu

	165		170		175
Leu Arg Leu Glu Leu Tyr Gly Ala Cys Val Glu Glu Glu Gly Ala Leu	180	185	190		
Thr Gly Gly Pro Lys Arg Leu Ala Thr Lys Leu Ser Ser Ser Leu Gly	195	200	205		
Arg Ser Ser Gly Arg Arg Val Arg Ala Ser Leu Asp Ser Ala Gly Gly	210	215	220		
Ser Gly Ser Ser Pro Ile Leu Leu Pro Thr Pro Val Val Gly Gly Pro	225	230	235	240	
Arg Tyr His Leu Leu Ala His Thr Thr Leu Thr Leu Ala Ala Val Gln	245	250	255		
Asp Gly Phe Arg Thr His Asp Leu Thr Leu Ala Ser His Glu Glu Asn	260	265	270		
Pro Ala Trp Leu Pro Leu Tyr Gly Ser Val Cys Cys Arg Leu Ala Ala	275	280	285		
Gln Pro Leu Cys Met Thr Gln Pro Thr Ala Ser Gly Thr Leu Arg Val	290	295	300		
Gln Gln Ala Gly Glu Met Gln Asn Trp Ala Gln Val His Gly Val Leu	305	310	315	320	
Lys Gly Thr Asn Leu Phe Cys Tyr Arg Gln Pro Glu Asp Ala Asp Thr	325	330	335		
Gly Glu Glu Pro Leu Leu Thr Ile Ala Val Asn Lys Glu Thr Arg Val	340	345	350		
Arg Ala Gly Glu Leu Asp Gln Ala Leu Gly Arg Pro Phe Thr Leu Ser	355	360	365		
Ile Ser Asn Gln Tyr Gly Asp Asp Glu Val Thr His Thr Leu Gln Thr	370	375	380		
Glu Ser Arg Glu Ala Leu Gln Ser Trp Met Glu Ala Leu Trp Gln Leu	385	390	395	400	
Phe Phe Asp Met Ser Gln Trp Lys Gln Cys Cys Asp Glu Ile Met Lys	405	410	415		
Ile Glu Thr Pro Ala Pro Arg Lys Pro Pro Gln Ala Leu Ala Lys Gln	420	425	430		
Gly Ser Leu Tyr His Glu Met Ala Ile Glu Pro Leu Asp Asp Ile Ala	435	440	445		
Ala Val Thr Asp Ile Leu Thr Gln Arg Glu Gly Ala Arg Leu Glu Thr	450	455	460		
Pro Pro Pro Trp Leu Ala Met Phe Thr Asp Gln Pro Ala Leu Pro Asn					

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465                               470                               475                               480
Pro Cys Ser Pro Ala Ser Val Ala Pro Ala Pro Asp Trp Thr His Pro
                               485                               490                               495

Leu Pro Trp Gly Arg Pro Arg Thr Phe Ser Leu Asp Ala Val Pro Pro
                               500                               505                               510

Asp His Ser Pro Arg Ala Arg Ser Val Ala Pro Leu Pro Pro Gln Arg
                               515                               520                               525

Ser Pro Arg Thr Arg Gly Leu Cys Ser Lys Gly Gln Pro Arg Thr Trp
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Leu Gln Ser Pro Val
545

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                  1                               5                               10

gct ctg atc tgc tgt tgt acc agg ggt cta atc agg cct gtg tct gcc      97
Ala Leu Ile Cys Cys Cys Thr Arg Gly Leu Ile Arg Pro Val Ser Ala
                  15                               20                               25

ttc tcc ttg aat agc cca gag aat tca tct aaa cag cct tcc tac agc      145
Phe Ser Leu Asn Ser Pro Glu Asn Ser Ser Lys Gln Pro Ser Tyr Ser
                  30                               35                               40

agc tcc cca ctc cag gtg gcc aga cgg gag ttc cag acc agt gtt gtc      193
Ser Ser Pro Leu Gln Val Ala Arg Arg Glu Phe Gln Thr Ser Val Val
                  45                               50                               55

tcc cgg gac act gac aca gcc gcc aag ttt att ggt gct ggg tca gcc      241
Ser Arg Asp Thr Asp Thr Ala Ala Lys Phe Ile Gly Ala Gly Ser Ala
                  60                               65                               70                               75

aca gtt ggt gtg gct gat tca ggg gct ggc att gga gcg gtg ttt ggc      289
Thr Val Gly Val Ala Asp Ser Gly Ala Gly Ile Gly Ala Val Phe Gly
                  80                               85                               90

agc ttg att att gtc tat gcc agg aag ctg tct ctc aag cag caa ctc      337
Ser Leu Ile Ile Val Tyr Ala Arg Lys Leu Ser Leu Lys Gln Gln Leu
                  95                               100                               105

ctc ttc tat gcc att ctg ggc ttt gcc ctg tct gag gcc atg ggg ctc      385
Leu Phe Tyr Ala Ile Leu Gly Phe Ala Leu Ser Glu Ala Met Gly Leu
                  110                               115                               120

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ttc tgt ttg atg atc tcc ttc ttc atc ctg ttc gcc atg tgaggctccg 434  
 Phe Cys Leu Met Ile Ser Phe Phe Ile Leu Phe Ala Met  
 125 130 135

tgagggtcac ctgcct 450

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 Cys Thr Arg Gly Leu Ile Arg Pro Val Ser Ala Phe Ser Leu Asn Ser  
 20 25 30  
 Pro Glu Asn Ser Ser Lys Gln Pro Ser Tyr Ser Ser Ser Pro Leu Gln  
 35 40 45  
 Val Ala Arg Arg Glu Phe Gln Thr Ser Val Val Ser Arg Asp Thr Asp  
 50 55 60  
 Thr Ala Ala Lys Phe Ile Gly Ala Gly Ser Ala Thr Val Gly Val Ala  
 65 70 75 80  
 Asp Ser Gly Ala Gly Ile Gly Ala Val Phe Gly Ser Leu Ile Ile Val  
 85 90 95  
 Tyr Ala Arg Lys Leu Ser Leu Lys Gln Gln Leu Leu Phe Tyr Ala Ile  
 100 105 110  
 Leu Gly Phe Ala Leu Ser Glu Ala Met Gly Leu Phe Cys Leu Met Ile  
 115 120 125  
 Ser Phe Phe Ile Leu Phe Ala Met  
 130 135

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<220>  
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 1 5 10 15  
 tgt acc agg ggt cta atc agg cct gtg tct gcc ttc tcc ttg aat agc 96  
 Cys Thr Arg Gly Leu Ile Arg Pro Val Ser Ala Phe Ser Leu Asn Ser

20	25	30	
cca gag aat tca tct aaa cag cct tcc tac agc agc tcc cca ctc cag			144
Pro Glu Asn Ser Ser Lys Gln Pro Ser Tyr Ser Ser Ser Pro Leu Gln			
35	40	45	
gtg gcc aga cgg gag ttc cag acc agt gtt gtc tcc cgg gac act gac			192
Val Ala Arg Arg Glu Phe Gln Thr Ser Val Val Ser Arg Asp Thr Asp			
50	55	60	
aca gcc gcc aag ttt att ggt gct ggg tca gcc aca gtt ggt gtg gct			240
Thr Ala Ala Lys Phe Ile Gly Ala Gly Ser Ala Thr Val Gly Val Ala			
65	70	75	80
gat tca gag gct ggc att gga gcg gtg ttt ggc agc ttg att att gtc			288
Asp Ser Glu Ala Gly Ile Gly Ala Val Phe Gly Ser Leu Ile Ile Val			
85	90	95	
tat gcc agg aag ctg tct ctc aag cag caa ctc ctc ttc tat gcc att			336
Tyr Ala Arg Lys Leu Ser Leu Lys Gln Gln Leu Leu Phe Tyr Ala Ile			
100	105	110	
ctg ggc ttt gcc ctg tct gag gcc atg ggg ctc ttc tgt ttg atg atc			384
Leu Gly Phe Ala Leu Ser Glu Ala Met Gly Leu Phe Cys Leu Met Ile			
115	120	125	
tcc ttc ttc atc ctg ttc gcc atg tgaggctccg tgagggtcac			428
Ser Phe Phe Ile Leu Phe Ala Met			
130	135		
ctgcct			434

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<211>136

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<213> Homo sapiens

<400>328

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1				5					10					15	

Cys	Thr	Arg	Gly	Leu	Ile	Arg	Pro	Val	Ser	Ala	Phe	Ser	Leu	Asn	Ser
			20					25					30		

Pro	Glu	Asn	Ser	Ser	Lys	Gln	Pro	Ser	Tyr	Ser	Ser	Ser	Pro	Leu	Gln
		35					40					45			

Val	Ala	Arg	Arg	Glu	Phe	Gln	Thr	Ser	Val	Val	Ser	Arg	Asp	Thr	Asp
	50					55					60				

Thr	Ala	Ala	Lys	Phe	Ile	Gly	Ala	Gly	Ser	Ala	Thr	Val	Gly	Val	Ala
	65					70				75					80

Asp	Ser	Glu	Ala	Gly	Ile	Gly	Ala	Val	Phe	Gly	Ser	Leu	Ile	Ile	Val
				85					90					95	

Tyr Ala Arg Lys Leu Ser Leu Lys Gln Gln Leu Leu Phe Tyr Ala Ile  
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 Leu Gly Phe Ala Leu Ser Glu Ala Met Gly Leu Phe Cys Leu Met Ile  
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 Ser Phe Phe Ile Leu Phe Ala Met  
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ttg ttc aaa cca gag ctg atc tac cag ttg gat cac aga cag gag cta	96
Leu Phe Lys Pro Glu Leu Ile Tyr Gln Leu Asp His Arg Gln Glu Leu	
15 20 25 30	
tgg atg gct aca aaa gac ctc tcc caa agc tcc tat cca ggt gac aac	144
Trp Met Ala Thr Lys Asp Leu Ser Gln Ser Ser Tyr Pro Gly Asp Asn	
35 40 45	
aca aaa ccc aag acc aca gag cct acc ttt tct cac ctg gcc ttg cct	192
Thr Lys Pro Lys Thr Thr Glu Pro Thr Phe Ser His Leu Ala Leu Pro	
50 55 60	
gag gaa gtc tta ctc cag gaa caa ctg aca caa gga gcc tca aag aac	240
Glu Glu Val Leu Leu Gln Glu Gln Leu Thr Gln Gly Ala Ser Lys Asn	
65 70 75	
tcc caa tta ggg caa tcc aag gat cag gat ggg cca tct gaa atg caa	288
Ser Gln Leu Gly Gln Ser Lys Asp Gln Asp Gly Pro Ser Glu Met Gln	
80 85 90	
gaa gtc cac ttg aaa ata ggg ata ggc ccc cag cgg ggg aag ctg ctg	336
Glu Val His Leu Lys Ile Gly Ile Gly Pro Gln Arg Gly Lys Leu Leu	
95 100 105 110	
gag aaa atg agt tct gaa cgt gat ggt ttg ggg tca gat gat ggt gta	384
Glu Lys Met Ser Ser Glu Arg Asp Gly Leu Gly Ser Asp Asp Gly Val	
115 120 125	
tgt aca aag att aca cag aaa caa gtt tca aca gaa ggt gat ctc tat	432
Cys Thr Lys Ile Thr Gln Lys Gln Val Ser Thr Glu Gly Asp Leu Tyr	
130 135 140	
gaa tgt gat tca cat gga cca gtt aca gat gcc ttg att cgc gaa gag	480
Glu Cys Asp Ser His Gly Pro Val Thr Asp Ala Leu Ile Arg Glu Glu	

145	150	155	
aaa aat tcc tat aaa tgt gag gaa tgc ggg aaa gtg ttt aaa aag aat			528
Lys Asn Ser Tyr Lys Cys Glu Glu Cys Gly Lys Val Phe Lys Lys Asn			
160	165	170	
gcc ctc ctt gtt cag cat gaa cgg att cac act caa gtg aag ccc tat			576
Ala Leu Leu Val Gln His Glu Arg Ile His Thr Gln Val Lys Pro Tyr			
175	180	185	190
gaa tgc aca gag tgt ggg aaa acc ttt agc aag agc act cat ctt ctt			624
Glu Cys Thr Glu Cys Gly Lys Thr Phe Ser Lys Ser Thr His Leu Leu			
195	200	205	
cag cac ctc atc atc cac act ggg gag aag ccc tat aag tgc atg gag			672
Gln His Leu Ile Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu			
210	215	220	
tgt ggg aag gct ttt aac cgc agg tca cac ctc aca cgg cac cag cgg			720
Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg			
225	230	235	
att cac agt gga gag aag cct tat aag tgc agt gaa tgt gga aag gcc			768
Ile His Ser Gly Glu Lys Pro Tyr Lys Cys Ser Glu Cys Gly Lys Ala			
240	245	250	
ttc acc cac cgc tcc act ttt gtc ttg cat cac agg agc cac act gga			816
Phe Thr His Arg Ser Thr Phe Val Leu His His Arg Ser His Thr Gly			
255	260	265	270
gaa aaa ccc ttt gtg tgc aaa gag tgt ggc aaa gcc ttt cga gat agg			864
Glu Lys Pro Phe Val Cys Lys Glu Cys Gly Lys Ala Phe Arg Asp Arg			
275	280	285	
cca ggt ttc att cga cac tac atc atc cac acg gga gag aag ccc tat			912
Pro Gly Phe Ile Arg His Tyr Ile Ile His Thr Gly Glu Lys Pro Tyr			
290	295	300	
gag tgc att gag tgt ggg aag gcc ttc aac cgc cgg tca tac ctc acg			960
Glu Cys Ile Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser Tyr Leu Thr			
305	310	315	
tgg cac caa cag att cac act gga gtg aaa ccc ttt gaa tgc aac gag			1008
Trp His Gln Gln Ile His Thr Gly Val Lys Pro Phe Glu Cys Asn Glu			
320	325	330	
tgt gga aaa gct ttt tgc gag agt gca gac ctc att caa cac tac att			1056
Cys Gly Lys Ala Phe Cys Glu Ser Ala Asp Leu Ile Gln His Tyr Ile			
335	340	345	350
atc cac act ggg gag aag ccc tat aag tgc atg gag tgt ggg aag gcg			1104
Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala			
355	360	365	
ttc aac cgt agg tca cac ctc aag cag cat caa cgg att cac act ggg			1152
Phe Asn Arg Arg Ser His Leu Lys Gln His Gln Arg Ile His Thr Gly			
370	375	380	



gag aag cct tat gaa tgc agt gaa tgt gga aag gcc ttc acc cac tgc	1200
Glu Lys Pro Tyr Glu Cys Ser Glu Cys Gly Lys Ala Phe Thr His Cys	
385 390 395	
tcc act ttt gtc ttg cat aaa agg acc cac aca gga gaa aaa ccc tat	1248
Ser Thr Phe Val Leu His Lys Arg Thr His Thr Gly Glu Lys Pro Tyr	
400 405 410	
gaa tgc aaa gaa tgt gga aaa gcc ttt agt gat agg gca gac ctc att	1296
Glu Cys Lys Glu Cys Gly Lys Ala Phe Ser Asp Arg Ala Asp Leu Ile	
415 420 425 430	
cgc cac ttc agc atc cac act gga gag aaa ccc tat gag tgc gtg gag	1344
Arg His Phe Ser Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Val Glu	
435 440 445	
tgt gga aag gcc ttc aac cgc agc tca cac ctc acg agg cac caa cag	1392
Cys Gly Lys Ala Phe Asn Arg Ser Ser His Leu Thr Arg His Gln Gln	
450 455 460	
att cac act gga gag aaa ccc tat gaa tgc atc cag tgt ggg aaa gcc	1440
Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Ile Gln Cys Gly Lys Ala	
465 470 475	
ttt tgc cgg agc gca aac ctt att cga cac tcc atc att cac act gga	1488
Phe Cys Arg Ser Ala Asn Leu Ile Arg His Ser Ile Ile His Thr Gly	
480 485 490	
gag aag ccg tat gaa tgc agt gag tgt gga aag gct ttt aat cgc ggc	1536
Glu Lys Pro Tyr Glu Cys Ser Glu Cys Gly Lys Ala Phe Asn Arg Gly	
495 500 505 510	
tca tcc ctc aca cat cat caa agg att cat act ggg aga aac cct acc	1584
Ser Ser Leu Thr His His Gln Arg Ile His Thr Gly Arg Asn Pro Thr	
515 520 525	
att gta aca gat gtg gga aga cct ttt atg act gca cag act tca gtc	1632
Ile Val Thr Asp Val Gly Arg Pro Phe Met Thr Ala Gln Thr Ser Val	
530 535 540	
aac atc cag gaa ctt tta tta ggg aaa gag ttt ttg aat atc acc act	1680
Asn Ile Gln Glu Leu Leu Leu Gly Lys Glu Phe Leu Asn Ile Thr Thr	
545 550 555	
gaa gaa aat ctg tgg tgaaaggga catcttacca tctggccatt cacactgaag	1735
Glu Glu Asn Leu Trp	
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agaaacttca taagcatcct ctcttttgaga aaac	1769

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<212>PRT

<213> Homo sapiens

<400>330

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Ala Thr Lys Asp Leu Ser Gln Ser Ser Tyr Pro Gly Asp Asn Thr Lys  
35 40 45

Pro Lys Thr Thr Glu Pro Thr Phe Ser His Leu Ala Leu Pro Glu Glu  
50 55 60

Val Leu Leu Gln Glu Gln Leu Thr Gln Gly Ala Ser Lys Asn Ser Gln  
65 70 75 80

Leu Gly Gln Ser Lys Asp Gln Asp Gly Pro Ser Glu Met Gln Glu Val  
85 90 95

His Leu Lys Ile Gly Ile Gly Pro Gln Arg Gly Lys Leu Leu Glu Lys  
100 105 110

Met Ser Ser Glu Arg Asp Gly Leu Gly Ser Asp Asp Gly Val Cys Thr  
115 120 125

Lys Ile Thr Gln Lys Gln Val Ser Thr Glu Gly Asp Leu Tyr Glu Cys  
130 135 140

Asp Ser His Gly Pro Val Thr Asp Ala Leu Ile Arg Glu Glu Lys Asn  
145 150 155 160

Ser Tyr Lys Cys Glu Glu Cys Gly Lys Val Phe Lys Lys Asn Ala Leu  
165 170 175

Leu Val Gln His Glu Arg Ile His Thr Gln Val Lys Pro Tyr Glu Cys  
180 185 190

Thr Glu Cys Gly Lys Thr Phe Ser Lys Ser Thr His Leu Leu Gln His  
195 200 205

Leu Ile Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly  
210 215 220

Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln Arg Ile His  
225 230 235 240

Ser Gly Glu Lys Pro Tyr Lys Cys Ser Glu Cys Gly Lys Ala Phe Thr  
245 250 255

His Arg Ser Thr Phe Val Leu His His Arg Ser His Thr Gly Glu Lys  
260 265 270

Pro Phe Val Cys Lys Glu Cys Gly Lys Ala Phe Arg Asp Arg Pro Gly  
275 280 285

Phe Ile Arg His Tyr Ile Ile His Thr Gly Glu Lys Pro Tyr Glu Cys

290	295	300
Ile Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser Tyr Leu Thr Trp His 305 310 315 320		
Gln Gln Ile His Thr Gly Val Lys Pro Phe Glu Cys Asn Glu Cys Gly 325 330 335		
Lys Ala Phe Cys Glu Ser Ala Asp Leu Ile Gln His Tyr Ile Ile His 340 345 350		
Thr Gly Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn 355 360 365		
Arg Arg Ser His Leu Lys Gln His Gln Arg Ile His Thr Gly Glu Lys 370 375 380		
Pro Tyr Glu Cys Ser Glu Cys Gly Lys Ala Phe Thr His Cys Ser Thr 385 390 395 400		
Phe Val Leu His Lys Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys 405 410 415		
Lys Glu Cys Gly Lys Ala Phe Ser Asp Arg Ala Asp Leu Ile Arg His 420 425 430		
Phe Ser Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Val Glu Cys Gly 435 440 445		
Lys Ala Phe Asn Arg Ser Ser His Leu Thr Arg His Gln Gln Ile His 450 455 460		
Thr Gly Glu Lys Pro Tyr Glu Cys Ile Gln Cys Gly Lys Ala Phe Cys 465 470 475 480		
Arg Ser Ala Asn Leu Ile Arg His Ser Ile Ile His Thr Gly Glu Lys 485 490 495		
Pro Tyr Glu Cys Ser Glu Cys Gly Lys Ala Phe Asn Arg Gly Ser Ser 500 505 510		
Leu Thr His His Gln Arg Ile His Thr Gly Arg Asn Pro Thr Ile Val 515 520 525		
Thr Asp Val Gly Arg Pro Phe Met Thr Ala Gln Thr Ser Val Asn Ile 530 535 540		
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Asn Leu Trp		

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<211>1899

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att cac tct gga gtg aag ccc tat gaa tgc aca gag tgt gga aaa acc Ile His Ser Gly Val Lys Pro Tyr Glu Cys Thr Glu Cys Gly Lys Thr 220 225 230	721
ttt agc aag agt aca tac ctc ctg cag cac cac atg gtc cac act ggg Phe Ser Lys Ser Thr Tyr Leu Leu Gln His His Met Val His Thr Gly 235 240 245 250	769
gag aag ccc tat aag tgc atg gag tgt ggg aag gct ttt aat cgg aag Glu Lys Pro Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Lys 255 260 265	817
tca cac ctt acc cag cac cag cgg att cac agt gga gag aag cct tat Ser His Leu Thr Gln His Gln Arg Ile His Ser Gly Glu Lys Pro Tyr 270 275 280	865
aag tgc agt gaa tgt gga aag gcc ttc acc cac cgc tcc act ttt gtc Lys Cys Ser Glu Cys Gly Lys Ala Phe Thr His Arg Ser Thr Phe Val 285 290 295	913
ttg cat aac agg agc cac act gga gaa aaa ccc ttt gtg tgc aaa gag Leu His Asn Arg Ser His Thr Gly Glu Lys Pro Phe Val Cys Lys Glu 300 305 310	961
tgt ggc aaa gcc ttt cga gat agg cca ggt ttc att cga cac tac atc Cys Gly Lys Ala Phe Arg Asp Arg Pro Gly Phe Ile Arg His Tyr Ile 315 320 325 330	1009
atc cac agt ggt gag aat ccc tac gag tgc ttc gaa tgt ggc aag gtc Ile His Ser Gly Glu Asn Pro Tyr Glu Cys Phe Glu Cys Gly Lys Val 335 340 345	1057
ttc aaa cac aga tca tac ctc atg tgg cac cag cag act cat acc ggg Phe Lys His Arg Ser Tyr Leu Met Trp His Gln Gln Thr His Thr Gly 350 355 360	1105
gag aag ccc tat gag tgc agt gaa tgt ggg aag gcc ttc tgt gag agc Glu Lys Pro Tyr Glu Cys Ser Glu Cys Gly Lys Ala Phe Cys Glu Ser 365 370 375	1153
gca gcg ctg att cac cac tat gtc atc cac act gga gag aag ccc ttt Ala Ala Leu Ile His His Tyr Val Ile His Thr Gly Glu Lys Pro Phe 380 385 390	1201
gag tgc ctc gag tgt ggg aag gct ttc aac cac cga tcc tac ctc aaa Glu Cys Leu Glu Cys Gly Lys Ala Phe Asn His Arg Ser Tyr Leu Lys 395 400 405 410	1249
agg cac cag cgg att cac act ggg gag aag cca tat gtg tgt agt gaa Arg His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Val Cys Ser Glu 415 420 425	1297
tgc gga aag gcc ttc acc cac tgc tct act ttc atc ttg cat aaa agg	1345

Cys	Gly	Lys	Ala	Phe	Thr	His	Cys	Ser	Thr	Phe	Ile	Leu	His	Lys	Arg		
			430					435					440				
gcc	cac	act	gga	gaa	aaa	cct	ttc	gag	tgc	aaa	gag	tgt	ggg	aaa	gcc	1393	
Ala	His	Thr	Gly	Glu	Lys	Pro	Phe	Glu	Cys	Lys	Glu	Cys	Gly	Lys	Ala		
		445					450				455						
ttt	agc	aat	agg	gca	gac	ctc	att	cgc	cac	ttc	agc	atc	cac	act	gga	1441	
Phe	Ser	Asn	Arg	Ala	Asp	Leu	Ile	Arg	His	Phe	Ser	Ile	His	Thr	Gly		
		460				465					470						
gag	aag	ccc	tat	gag	tgc	atg	gag	tgt	gga	aag	gcc	ttc	aac	cgc	agg	1489	
Glu	Lys	Pro	Tyr	Glu	Cys	Met	Glu	Cys	Gly	Lys	Ala	Phe	Asn	Arg	Arg		
475					480				485					490			
tca	ggc	ctc	aca	agg	cac	cag	cgg	att	cat	agt	gga	gag	aag	ccc	tat	1537	
Ser	Gly	Leu	Thr	Arg	His	Gln	Arg	Ile	His	Ser	Gly	Glu	Lys	Pro	Tyr		
			495					500						505			
gaa	tgc	atc	gag	tgt	ggg	aaa	aca	ttt	tgc	tgg	agc	aca	aac	ctc	att	1585	
Glu	Cys	Ile	Glu	Cys	Gly	Lys	Thr	Phe	Cys	Trp	Ser	Thr	Asn	Leu	Ile		
			510					515					520				
cga	cac	tct	atc	atc	cac	act	gga	gag	aag	ccg	tat	gag	tgc	agt	gaa	1633	
Arg	His	Ser	Ile	Ile	His	Thr	Gly	Glu	Lys	Pro	Tyr	Glu	Cys	Ser	Glu		
		525					530					535					
tgt	gga	aag	gcc	ttc	agt	cgc	agc	tcg	tcc	ctc	act	cag	cat	caa	agg	1681	
Cys	Gly	Lys	Ala	Phe	Ser	Arg	Ser	Ser	Ser	Leu	Thr	Gln	His	Gln	Arg		
	540					545				550							
atg	cat	act	ggg	aga	aat	cct	atc	agt	gta	aca	gat	gtg	gga	aga	cct	1729	
Met	His	Thr	Gly	Arg	Asn	Pro	Ile	Ser	Val	Thr	Asp	Val	Gly	Arg	Pro		
555					560				565					570			
ttt	aca	agt	ggg	cag	acc	tca	gtc	aac	atc	caa	gaa	ctt	tta	ttg	ggg	1777	
Phe	Thr	Ser	Gly	Gln	Thr	Ser	Val	Asn	Ile	Gln	Glu	Leu	Leu	Leu	Gly		
			575					580					585				
aaa	aac	ttt	ttg	aat	gtc	acc	act	gag	gaa	aat	ctt	ttg	caa	gag	gaa	1825	
Lys	Asn	Phe	Leu	Asn	Val	Thr	Thr	Glu	Glu	Asn	Leu	Leu	Gln	Glu	Glu		
			590					595					600				
gca	tct	tac	atg	gca	tct	gat	cgt	aca	tac	caa	aga	gaa	acc	cca	caa	1873	
Ala	Ser	Tyr	Met	Ala	Ser	Asp	Arg	Thr	Tyr	Gln	Arg	Glu	Thr	Pro	Gln		
		605					610					615					
gtg	tct	tca	ctg	tgagaaaacc	ttct											1899	
Val	Ser	Ser	Leu														
		620															
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Met	Thr	Phe	Gln	Val	Ser	Val	Thr	Phe	Asp	Asp	Val	Ala	Val	Thr	Phe	1	5	10	15
Thr	Gln	Glu	Glu	Trp	Gly	Gln	Leu	Asp	Leu	Ala	Gln	Arg	Thr	Leu	Tyr	20	25	30	
Gln	Glu	Val	Met	Leu	Glu	Asn	Cys	Gly	Leu	Leu	Val	Ser	Leu	Gly	Gly	35	40	45	
Cys	Pro	Val	Pro	Arg	Pro	Glu	Leu	Ile	Tyr	His	Leu	Glu	His	Gly	Gln	50	55	60	
Glu	Pro	Trp	Thr	Arg	Lys	Glu	Asp	Leu	Ser	Gln	Gly	Thr	Cys	Pro	Gly	65	70	75	80
Asp	Lys	Gly	Lys	Pro	Lys	Ser	Thr	Glu	Pro	Thr	Thr	Cys	Glu	Leu	Ala	85	90	95	
Leu	Ser	Glu	Gly	Ile	Ser	Phe	Trp	Gly	Gln	Leu	Thr	Gln	Gly	Ala	Ser	100	105	110	
Gly	Asp	Ser	Gln	Leu	Gly	Gln	Pro	Lys	Asp	Gln	Asp	Gly	Phe	Ser	Glu	115	120	125	
Met	Gln	Gly	Glu	Arg	Leu	Arg	Pro	Gly	Leu	Asp	Ser	Gln	Lys	Glu	Lys	130	135	140	
Leu	Pro	Gly	Lys	Met	Ser	Pro	Lys	His	Asp	Gly	Leu	Gly	Thr	Ala	Asp	145	150	155	160
Ser	Val	Cys	Ser	Arg	Ile	Ile	Gln	Asp	Arg	Val	Ser	Leu	Gly	Asp	Asp	165	170	175	
Val	His	Asp	Cys	Asp	Ser	His	Gly	Ser	Gly	Lys	Asn	Pro	Val	Ile	Gln	180	185	190	
Glu	Glu	Glu	Asn	Ile	Phe	Lys	Cys	Asn	Glu	Cys	Glu	Lys	Val	Phe	Asn	195	200	205	
Lys	Lys	Arg	Leu	Leu	Ala	Arg	His	Glu	Arg	Ile	His	Ser	Gly	Val	Lys	210	215	220	
Pro	Tyr	Glu	Cys	Thr	Glu	Cys	Gly	Lys	Thr	Phe	Ser	Lys	Ser	Thr	Tyr	225	230	235	240
Leu	Leu	Gln	His	His	Met	Val	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	245	250	255	
Met	Glu	Cys	Gly	Lys	Ala	Phe	Asn	Arg	Lys	Ser	His	Leu	Thr	Gln	His	260	265	270	
Gln	Arg	Ile	His	Ser	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Ser	Glu	Cys	Gly	275	280	285	
Lys	Ala	Phe	Thr	His	Arg	Ser	Thr	Phe	Val	Leu	His	Asn	Arg	Ser	His	290	295	300	

Thr Gly Glu Lys Pro Phe Val Cys Lys Glu Cys Gly Lys Ala Phe Arg  
 305 310 315 320  
 Asp Arg Pro Gly Phe Ile Arg His Tyr Ile Ile His Ser Gly Glu Asn  
 325 330 335  
 Pro Tyr Glu Cys Phe Glu Cys Gly Lys Val Phe Lys His Arg Ser Tyr  
 340 345 350  
 Leu Met Trp His Gln Gln Thr His Thr Gly Glu Lys Pro Tyr Glu Cys  
 355 360 365  
 Ser Glu Cys Gly Lys Ala Phe Cys Glu Ser Ala Ala Leu Ile His His  
 370 375 380  
 Tyr Val Ile His Thr Gly Glu Lys Pro Phe Glu Cys Leu Glu Cys Gly  
 385 390 395 400  
 Lys Ala Phe Asn His Arg Ser Tyr Leu Lys Arg His Gln Arg Ile His  
 405 410 415  
 Thr Gly Glu Lys Pro Tyr Val Cys Ser Glu Cys Gly Lys Ala Phe Thr  
 420 425 430  
 His Cys Ser Thr Phe Ile Leu His Lys Arg Ala His Thr Gly Glu Lys  
 435 440 445  
 Pro Phe Glu Cys Lys Glu Cys Gly Lys Ala Phe Ser Asn Arg Ala Asp  
 450 455 460  
 Leu Ile Arg His Phe Ser Ile His Thr Gly Glu Lys Pro Tyr Glu Cys  
 465 470 475 480  
 Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser Gly Leu Thr Arg His  
 485 490 495  
 Gln Arg Ile His Ser Gly Glu Lys Pro Tyr Glu Cys Ile Glu Cys Gly  
 500 505 510  
 Lys Thr Phe Cys Trp Ser Thr Asn Leu Ile Arg His Ser Ile Ile His  
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 Thr Gly Glu Lys Pro Tyr Glu Cys Ser Glu Cys Gly Lys Ala Phe Ser  
 530 535 540  
 Arg Ser Ser Ser Leu Thr Gln His Gln Arg Met His Thr Gly Arg Asn  
 545 550 555 560  
 Pro Ile Ser Val Thr Asp Val Gly Arg Pro Phe Thr Ser Gly Gln Thr  
 565 570 575  
 Ser Val Asn Ile Gln Glu Leu Leu Leu Gly Lys Asn Phe Leu Asn Val  
 580 585 590  
 Thr Thr Glu Glu Asn Leu Leu Gln Glu Glu Ala Ser Tyr Met Ala Ser  
 595 600 605



Asp	Arg	Thr	Tyr	Gln	Arg	Glu	Thr	Pro	Gln	Val	Ser	Ser	Leu
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gaactggtag gtctgcgccc catcgacgaa caggctctcg cgctccaggc												150	
attgaccgcg cagcagggaa atctccggct gcaggtaatt gcgtgagcgg												200	
ctcttgcgct cggcctgcga cagctccagc gcgacacggg cgcaatcgcc												250	
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gggtgcaacc cgcagcaacc agggccacgg ccagaatgat caggttacgc												350	
atgggcaatt cctccaatga gcagtgtatc gacagcccag gcaaaaactg												400	
aacagcggca agccgacgac gggttttctg gcggcgcctt ggcatgacgc												450	
cactgcctct cattttatca acgccagcgc cagcaccgct cgtcctctcg												500	
aaccagcgtt aaatcccctt ctgcgctgac ccatatcaat gccgttcagc												550	
gcaacagggg gtgtaatgta ggtacagact ccaggcgagg acgctgcc atg aaa												604	

## Met Lys

ctg caa cga ctg ttg gtc gtc atc gac gcc gaa cac cag caa caa ccc Leu Gln Arg Leu Leu Val Val Ile Asp Ala Glu His Gln Gln Pro	652
5 10 15	
gcc ctg caa cgc gca gcc gat gtg gca cgc aag acc ggc gcc gaa ttg Ala Leu Gln Arg Ala Ala Asp Val Ala Arg Lys Thr Gly Ala Glu Leu	700
20 25 30	
cac ctg ttg cag atc gaa tac cac cca agc ctg gaa agc ggc ctg ctg His Leu Leu Gln Ile Glu Tyr His Pro Ser Leu Glu Ser Gly Leu Leu	748
35 40 45 50	
gac agc cat ctg ctc aac cgc gcc cgt gaa acc atc ctg cga cag agc Asp Ser His Leu Leu Asn Arg Ala Arg Glu Thr Ile Leu Arg Gln Ser	796
55 60 65	
cac gag gcc ctg cgt gcc agc gtc gct cac ctg agc gat gaa gga ttc His Glu Ala Leu Arg Ala Ser Val Ala His Leu Ser Asp Glu Gly Phe	844
70 75 80	
aag atc gca gtg gac gtg cgc tgg ggc aaa cgt cgt cat gaa gaa atc Lys Ile Ala Val Asp Val Arg Trp Gly Lys Arg Arg His Glu Glu Ile	892
85 90 95	
ctc gcc cgc gtc gcg gtg ttg caa ccg gac atc ctg ttc aag tcg act Leu Ala Arg Val Ala Val Leu Gln Pro Asp Ile Leu Phe Lys Ser Thr	940
100 105 110	
cat ccc agc agt gcg ctg cgc cgc ctg ttg ttc agt gat acc agt tgg His Pro Ser Ser Ala Leu Arg Arg Leu Leu Phe Ser Asp Thr Ser Trp	988
115 120 125 130	
cag ctg att cgc cgc agc ccg gtg ccg ctg tgg ctg gta cac gac gcc Gln Leu Ile Arg Arg Ser Pro Val Pro Leu Trp Leu Val His Asp Ala	1036
135 140 145	
gag ccc cat ggt cag agc ctg tgc gct gcg ctc gac ccg ctg cac agc Glu Pro His Gly Gln Ser Leu Cys Ala Ala Leu Asp Pro Leu His Ser	1084
150 155 160	
gcg gac aaa cct gcc gcc ctc gat cat cag ttg att gat gcc agc cag Ala Asp Lys Pro Ala Ala Leu Asp His Gln Leu Ile Asp Ala Ser Gln	1132
165 170 175	
acc ctg cag gcc gag ctc ggc tta cag gcc caa tac ctg cat gca cag Thr Leu Gln Ala Glu Leu Gly Leu Gln Ala Gln Tyr Leu His Ala Gln	1180
180 185 190	
gcg cct ctg ccg cgg tcg ctg ctg ttc gac gcc gag gta gcg cag gaa Ala Pro Leu Pro Arg Ser Leu Leu Phe Asp Ala Glu Val Ala Gln Glu	1228
195 200 205 210	
tat gaa gac tac gtg acc cag tgc agc cgc gag cac cgc gaa gcc ttc Tyr Glu Asp Tyr Val Thr Gln Cys Ser Arg Glu His Arg Glu Ala Phe	1276

215	220	225	
gac aag ctg atc gcc cag cac gcc atc gat aga gca cag gcc cac ctg			1324
Asp Lys Leu Ile Ala Gln His Ala Ile Asp Arg Ala Gln Ala His Leu			
230	235	240	
ttg gac ggt ttt gcc gag gaa gtc atc ccg cgt ttc gtg cgt gag cac			1372
Leu Asp Gly Phe Ala Glu Glu Val Ile Pro Arg Phe Val Arg Glu His			
245	250	255	
aat ata ggc ctg ctg gtg atg ggc gcc atc gcc cgc ggc cat ctg gac			1420
Asn Ile Gly Leu Leu Val Met Gly Ala Ile Ala Arg Gly His Leu Asp			
260	265	270	
agc ctg ctg atc ggc cac acc gca gaa cgg gtg ctg gaa cgt gtc gag			1468
Ser Leu Leu Ile Gly His Thr Ala Glu Arg Val Leu Glu Arg Val Glu			
275	280	285	290
tgc gat ctg ctg gtg atc aaa tcg cac ggc aaa ggg tagtgacacag			1514
Cys Asp Leu Leu Val Ile Lys Ser His Gly Lys Gly			
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<212>PRT

<213> Homo sapiens

<400>334

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Glu Leu His Leu Leu Gln Ile Glu Tyr His Pro Ser Leu Glu Ser Gly
35 40 45

Leu Leu Asp Ser His Leu Leu Asn Arg Ala Arg Glu Thr Ile Leu Arg
50 55 60

Gln Ser His Glu Ala Leu Arg Ala Ser Val Ala His Leu Ser Asp Glu
65 70 75 80

Gly Phe Lys Ile Ala Val Asp Val Arg Trp Gly Lys Arg Arg His Glu
85 90 95

Glu Ile Leu Ala Arg Val Ala Val Leu Gln Pro Asp Ile Leu Phe Lys
100 105 110

Ser Thr His Pro Ser Ser Ala Leu Arg Arg Leu Leu Phe Ser Asp Thr
115 120 125

Ser Trp Gln Leu Ile Arg Arg Ser Pro Val Pro Leu Trp Leu Val His

130	135	140	
Asp Ala Glu Pro His Gly Gln Ser Leu Cys	Ala Ala Leu Asp Pro Leu		
145	150	155	160
His Ser Ala Asp Lys Pro Ala Ala Leu Asp His Gln Leu Ile Asp Ala			
	165	170	175
Ser Gln Thr Leu Gln Ala Glu Leu Gly Leu Gln Ala Gln Tyr Leu His			
	180	185	190
Ala Gln Ala Pro Leu Pro Arg Ser Leu Leu Phe Asp Ala Glu Val Ala			
	195	200	205
Gln Glu Tyr Glu Asp Tyr Val Thr Gln Cys Ser Arg Glu His Arg Glu			
	210	215	220
Ala Phe Asp Lys Leu Ile Ala Gln His Ala Ile Asp Arg Ala Gln Ala			
225	230	235	240
His Leu Leu Asp Gly Phe Ala Glu Glu Val Ile Pro Arg Phe Val Arg			
	245	250	255
Glu His Asn Ile Gly Leu Leu Val Met Gly Ala Ile Ala Arg Gly His			
	260	265	270
Leu Asp Ser Leu Leu Ile Gly His Thr Ala Glu Arg Val Leu Glu Arg			
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Val Glu Cys Asp Leu Leu Val Ile Lys Ser His Gly Lys Gly			
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Ser Phe Arg Gly Arg Gln Gly Ala Ser Lys Gln Gln Pro Ala Pro Pro			
10	15	20	
ccg cag ccg ccc gag gtc ccc ggt ggc gac agc ggc aag atc gtg atc			146
Pro Gln Pro Pro Glu Val Pro Gly Gly Asp Ser Gly Lys Ile Val Ile			
25	30	35	40
aac gtg ggc ggc gtg cgc cat gag acg tac cgc tcg acg ctg cgc acc			194
Asn Val Gly Gly Val Arg His Glu Thr Tyr Arg Ser Thr Leu Arg Thr			
	45	50	55

ctg ccg ggg acg cgg ctg gcc ggc ctg acg gag ccc gag gcg gcg gca	242
Leu Pro Gly Thr Arg Leu Ala Gly Leu Thr Glu Pro Glu Ala Ala Ala	
60 65 70	
cgc ttc gac tac gac ccg ggc gcc gac gag ttc ttc ttt gac cgg cac	290
Arg Phe Asp Tyr Asp Pro Gly Ala Asp Glu Phe Phe Phe Asp Arg His	
75 80 85	
ccg gga gtc ttc gcg tac gtg ctc aac tac tac cgc acc ggc aag ctg	338
Pro Gly Val Phe Ala Tyr Val Leu Asn Tyr Tyr Arg Thr Gly Lys Leu	
90 95 100	
cac tgc cca gcc gac gtg tgc ggg ccc ctg ttt gag gag gag ctc ggc	386
His Cys Pro Ala Asp Val Cys Gly Pro Leu Phe Glu Glu Glu Leu Gly	
105 110 115 120	
ttc tgg ggc atc gac gag acc gac gtg gag gcc tgc tgc tgg atg acc	434
Phe Trp Gly Ile Asp Glu Thr Asp Val Glu Ala Cys Cys Trp Met Thr	
125 130 135	
tac cgg cag cat cgc gac gct gag gag gcg ctc gac tcc ttc gag gcg	482
Tyr Arg Gln His Arg Asp Ala Glu Glu Ala Leu Asp Ser Phe Glu Ala	
140 145 150	
ccc gac ccc gcg ggc gcc gcc aac gcc gcc aac gcc gca ggc gcc cac	530
Pro Asp Pro Ala Gly Ala Ala Asn Ala Ala Asn Ala Ala Gly Ala His	
155 160 165	
gac gga ggc ctg gac gac gag gcg ggc gcg ggc ggc ggc ggc ctg gac	578
Asp Gly Gly Leu Asp Asp Glu Ala Gly Ala Gly Gly Gly Gly Leu Asp	
170 175 180	
gga gcg ggc ggc gag ctc aag cgc ctc tgc ttc cag gac gcg ggc ggc	626
Gly Ala Gly Gly Glu Leu Lys Arg Leu Cys Phe Gln Asp Ala Gly Gly	
185 190 195 200	
ggc gcc ggg ggg ccg cca ggg ggc gcg ggc ggc gcg ggc ggc aca tgg	674
Gly Ala Gly Gly Pro Pro Gly Gly Ala Gly Gly Ala Gly Gly Thr Trp	
205 210 215	
tgg cgc cgc tgg cag ccc cgc gtg tgg gcg ctc ttc gag gac ccc tac	722
Trp Arg Arg Trp Gln Pro Arg Val Trp Ala Leu Phe Glu Asp Pro Tyr	
220 225 230	
tcg tcg cgg gct gcc agg tat gtg gcc ttc gcc tcc ctc ttc ttc atc	770
Ser Ser Arg Ala Ala Arg Tyr Val Ala Phe Ala Ser Leu Phe Phe Ile	
235 240 245	
ctc atc tcc atc acc acc ttc tgc ctg gaa acc cat gag ggc ttc atc	818
Leu Ile Ser Ile Thr Thr Phe Cys Leu Glu Thr His Glu Gly Phe Ile	
250 255 260	
cat att agc aac aag acg gtg acc cag gcc tcc ccg atc ccc ggg gca	866
His Ile Ser Asn Lys Thr Val Thr Gln Ala Ser Pro Ile Pro Gly Ala	
265 270 275 280	
cct ccg gag aac atc acc aac gtg gag gtg gag acg gag ccc ttc ctg	914

Pro	Pro	Glu	Asn	Ile	Thr	Asn	Val	Glu	Val	Glu	Thr	Glu	Pro	Phe	Leu		
				285					290					295			
acc	tac	gtg	gag	ggg	gtg	tgc	gtg	gtc	tgg	ttc	acc	ttc	gag	ttc	ctc	962	
Thr	Tyr	Val	Glu	Gly	Val	Cys	Val	Val	Trp	Phe	Thr	Phe	Glu	Phe	Leu		
			300					305					310				
atg	cgc	atc	acc	ttc	tgc	cca	gac	aag	gtg	gag	ttt	ctt	aaa	agc	agc	1010	
Met	Arg	Ile	Thr	Phe	Cys	Pro	Asp	Lys	Val	Glu	Phe	Leu	Lys	Ser	Ser		
			315				320					325					
ctc	aac	atc	atc	gac	tgt	gtg	gcc	atc	ctg	ccc	ttc	tat	ctc	gag	gtg	1058	
Leu	Asn	Ile	Ile	Asp	Cys	Val	Ala	Ile	Leu	Pro	Phe	Tyr	Leu	Glu	Val		
			330				335				340						
ggc	ctc	tcg	ggc	ctc	agc	tcc	aag	gcc	gcc	aaa	gac	gtg	ctg	ggc	ttc	1106	
Gly	Leu	Ser	Gly	Leu	Ser	Ser	Lys	Ala	Ala	Lys	Asp	Val	Leu	Gly	Phe		
					350					355					360		
ctg	cgg	gtg	gtc	cgc	ttc	gtc	cgc	atc	ctg	cgc	atc	ttc	aag	ctg	acc	1154	
Leu	Arg	Val	Val	Arg	Phe	Val	Arg	Ile	Leu	Arg	Ile	Phe	Lys	Leu	Thr		
				365					370					375			
cgg	cac	ttc	gtg	ggg	ctg	cgc	gtg	ctg	gga	cac	acg	ctc	cgc	gcc	agc	1202	
Arg	His	Phe	Val	Gly	Leu	Arg	Val	Leu	Gly	His	Thr	Leu	Arg	Ala	Ser		
			380					385					390				
acc	aac	gag	ttc	ctg	ctg	ctc	atc	atc	ttc	ctg	gcc	ctg	ggg	gtg	ctc	1250	
Thr	Asn	Glu	Phe	Leu	Leu	Leu	Ile	Ile	Phe	Leu	Ala	Leu	Gly	Val	Leu		
			395				400				405						
atc	ttc	gcc	acc	atg	att	tac	tac	gct	gag	cgc	att	ggc	gcc	gac	ccc	1298	
Ile	Phe	Ala	Thr	Met	Ile	Tyr	Tyr	Ala	Glu	Arg	Ile	Gly	Ala	Asp	Pro		
			410			415					420						
gat	gac	atc	ctg	ggc	tcc	aac	cac	acc	tac	ttc	aag	aac	atc	ccc	att	1346	
Asp	Asp	Ile	Leu	Gly	Ser	Asn	His	Thr	Tyr	Phe	Lys	Asn	Ile	Pro	Ile		
					430				435					440			
ggc	ttc	tgg	tgg	gct	gtg	gtc	acc	atg	acg	acc	ctg	ggc	tat	gga	gac	1394	
Gly	Phe	Trp	Trp	Ala	Val	Val	Thr	Met	Thr	Thr	Leu	Gly	Tyr	Gly	Asp		
				445				450					455				
atg	tac	ccc	aag	acg	tgg	tcg	ggg	atg	ctg	gtc	ggg	gcg	ctg	tgt	gcc	1442	
Met	Tyr	Pro	Lys	Thr	Trp	Ser	Gly	Met	Leu	Val	Gly	Ala	Leu	Cys	Ala		
			460				465					470					
ctg	gcg	ggg	gtg	ctg	acc	atc	gcc	atg	cct	gtg	ccc	gtc	att	gtc	aac	1490	
Leu	Ala	Gly	Val	Leu	Thr	Ile	Ala	Met	Pro	Val	Pro	Val	Ile	Val	Asn		
			475				480					485					
aac	ttt	ggc	atg	tac	tat	tcg	ctg	gcc	atg	gcc	aag	cag	aag	ctg	ccc	1538	
Asn	Phe	Gly	Met	Tyr	Tyr	Ser	Leu	Ala	Met	Ala	Lys	Gln	Lys	Leu	Pro		
			490			495				500							
aag	aag	aag	aac	aaa	cac	atc	ccc	cgg	ccc	ccg	caa	ccg	ggc	tcg	ccc	1586	
Lys	Lys	Lys	Asn	Lys	His	Ile	Pro	Arg	Pro	Pro	Gln	Pro	Gly	Ser	Pro		

505	510	515	520	
aac tac tgc aag cct gac cca ccc ccg cca ccc ccg ccc cac ccg cac				1634
Asn Tyr Cys Lys Pro Asp Pro Pro Pro Pro Pro Pro Pro His Pro His				
525		530	535	
cac ggc agc ggg ggc atc agc ccg ccg cca ccc atc acc cca ccc tcc				1682
His Gly Ser Gly Gly Ile Ser Pro Pro Pro Pro Ile Thr Pro Pro Ser				
540		545	550	
atg ggg gtg act gtg gcc ggg gcc tac cca gcg ggg ccc cac acg cac				1730
Met Gly Val Thr Val Ala Gly Ala Tyr Pro Ala Gly Pro His Thr His				
555		560	565	
ccc ggg ctg ctc agg ggg gga gcg ggt ggg ctg ggg atc atg ggg ctg				1778
Pro Gly Leu Leu Arg Gly Gly Ala Gly Gly Leu Gly Ile Met Gly Leu				
570		575	580	
cct cct ctg cca gcc ccc ggc gag cct tgc ccg ttg gct cag gag gag				1826
Pro Pro Leu Pro Ala Pro Gly Glu Pro Cys Pro Leu Ala Gln Glu Glu				
585		590	595	600
gtg att gag atc aac cgg gca gat cct cgc ccc aat ggg gat ccg gca				1874
Val Ile Glu Ile Asn Arg Ala Asp Pro Arg Pro Asn Gly Asp Pro Ala				
605		610	615	
gca gct gcg ctt gcc cac gag gac tgc cca gcc att gac cag cct gcc				1922
Ala Ala Ala Leu Ala His Glu Asp Cys Pro Ala Ile Asp Gln Pro Ala				
620		625	630	
atg tcc ccg gaa gac aag agc ccc atc acg cct gga agc cgt ggc cgc				1970
Met Ser Pro Glu Asp Lys Ser Pro Ile Thr Pro Gly Ser Arg Gly Arg				
635		640	645	
tat agc cgg gac cga gcc tgc ttc ctc ctc acc gac tat gcc cct tcc				2018
Tyr Ser Arg Asp Arg Ala Cys Phe Leu Leu Thr Asp Tyr Ala Pro Ser				
650		655	660	
cct gat ggc tcc atc cga aaa gcc act ggt gct ccc cca ctg ccc ccc				2066
Pro Asp Gly Ser Ile Arg Lys Ala Thr Gly Ala Pro Pro Leu Pro Pro				
665		670	675	680
caa gac tgg cgt aag cca ggc ccc cca agc ttc ttg ccc gac ctc aac				2114
Gln Asp Trp Arg Lys Pro Gly Pro Pro Ser Phe Leu Pro Asp Leu Asn				
685		690	695	
gcc aac gcc gcg gcc tgg ata tcc ccc tagtggacga accccctccc				2161
Ala Asn Ala Ala Trp Ile Ser Pro				
700		705		
ccccgggctct tgtcaccgcc tgagacctcg cgagactttc g				2202

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 <212>PRT

<213> Homo sapiens

<400>336

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			20					25					30		
Gly	Asp	Ser	Gly	Lys	Ile	Val	Ile	Asn	Val	Gly	Gly	Val	Arg	His	Glu
		35					40					45			
Thr	Tyr	Arg	Ser	Thr	Leu	Arg	Thr	Leu	Pro	Gly	Thr	Arg	Leu	Ala	Gly
	50					55					60				
Leu	Thr	Glu	Pro	Glu	Ala	Ala	Ala	Arg	Phe	Asp	Tyr	Asp	Pro	Gly	Ala
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Asp	Glu	Phe	Phe	Phe	Asp	Arg	His	Pro	Gly	Val	Phe	Ala	Tyr	Val	Leu
				85					90					95	
Asn	Tyr	Tyr	Arg	Thr	Gly	Lys	Leu	His	Cys	Pro	Ala	Asp	Val	Cys	Gly
			100					105					110		
Pro	Leu	Phe	Glu	Glu	Glu	Leu	Gly	Phe	Trp	Gly	Ile	Asp	Glu	Thr	Asp
		115					120					125			
Val	Glu	Ala	Cys	Cys	Trp	Met	Thr	Tyr	Arg	Gln	His	Arg	Asp	Ala	Glu
	130					135					140				
Glu	Ala	Leu	Asp	Ser	Phe	Glu	Ala	Pro	Asp	Pro	Ala	Gly	Ala	Ala	Asn
145					150					155					160
Ala	Ala	Asn	Ala	Ala	Gly	Ala	His	Asp	Gly	Gly	Leu	Asp	Asp	Glu	Ala
				165					170					175	
Gly	Ala	Gly	Gly	Gly	Gly	Leu	Asp	Gly	Ala	Gly	Gly	Glu	Leu	Lys	Arg
			180					185					190		
Leu	Cys	Phe	Gln	Asp	Ala	Gly	Gly	Gly	Ala	Gly	Gly	Pro	Pro	Gly	Gly
		195					200					205			
Ala	Gly	Gly	Ala	Gly	Gly	Thr	Trp	Trp	Arg	Arg	Trp	Gln	Pro	Arg	Val
	210					215					220				
Trp	Ala	Leu	Phe	Glu	Asp	Pro	Tyr	Ser	Ser	Arg	Ala	Ala	Arg	Tyr	Val
225					230					235					240
Ala	Phe	Ala	Ser	Leu	Phe	Phe	Ile	Leu	Ile	Ser	Ile	Thr	Thr	Phe	Cys
				245					250					255	
Leu	Glu	Thr	His	Glu	Gly	Phe	Ile	His	Ile	Ser	Asn	Lys	Thr	Val	Thr
			260					265					270		
Gln	Ala	Ser	Pro	Ile	Pro	Gly	Ala	Pro	Pro	Glu	Asn	Ile	Thr	Asn	Val
		275					280					285			



Glu Val Glu Thr Glu Pro Phe Leu Thr Tyr Val Glu Gly Val Cys Val  
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 Val Trp Phe Thr Phe Glu Phe Leu Met Arg Ile Thr Phe Cys Pro Asp  
 305 310 315 320  
 Lys Val Glu Phe Leu Lys Ser Ser Leu Asn Ile Ile Asp Cys Val Ala  
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 Ile Leu Pro Phe Tyr Leu Glu Val Gly Leu Ser Gly Leu Ser Ser Lys  
 340 345 350  
 Ala Ala Lys Asp Val Leu Gly Phe Leu Arg Val Val Arg Phe Val Arg  
 355 360 365  
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 Leu Gly His Thr Leu Arg Ala Ser Thr Asn Glu Phe Leu Leu Leu Ile  
 385 390 395 400  
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 Ala Glu Arg Ile Gly Ala Asp Pro Asp Asp Ile Leu Gly Ser Asn His  
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 Thr Tyr Phe Lys Asn Ile Pro Ile Gly Phe Trp Trp Ala Val Val Thr  
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 Met Thr Thr Leu Gly Tyr Gly Asp Met Tyr Pro Lys Thr Trp Ser Gly  
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 Met Leu Val Gly Ala Leu Cys Ala Leu Ala Gly Val Leu Thr Ile Ala  
 465 470 475 480  
 Met Pro Val Pro Val Ile Val Asn Asn Phe Gly Met Tyr Tyr Ser Leu  
 485 490 495  
 Ala Met Ala Lys Gln Lys Leu Pro Lys Lys Lys Asn Lys His Ile Pro  
 500 505 510  
 Arg Pro Pro Gln Pro Gly Ser Pro Asn Tyr Cys Lys Pro Asp Pro Pro  
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 Pro Pro Pro Pro Pro His Pro His His Gly Ser Gly Gly Ile Ser Pro  
 530 535 540  
 Pro Pro Pro Ile Thr Pro Pro Ser Met Gly Val Thr Val Ala Gly Ala  
 545 550 555 560  
 Tyr Pro Ala Gly Pro His Thr His Pro Gly Leu Leu Arg Gly Gly Ala  
 565 570 575  
 Gly Gly Leu Gly Ile Met Gly Leu Pro Pro Leu Pro Ala Pro Gly Glu  
 580 585 590

Pro Cys Pro Leu Ala Gln Glu Glu Val Ile Glu Ile Asn Arg Ala Asp  
595 600 605

Pro Arg Pro Asn Gly Asp Pro Ala Ala Ala Ala Leu Ala His Glu Asp  
610 615 620

Cys Pro Ala Ile Asp Gln Pro Ala Met Ser Pro Glu Asp Lys Ser Pro  
625 630 635 640

Ile Thr Pro Gly Ser Arg Gly Arg Tyr Ser Arg Asp Arg Ala Cys Phe  
645 650 655

Leu Leu Thr Asp Tyr Ala Pro Ser Pro Asp Gly Ser Ile Arg Lys Ala  
660 665 670

Thr Gly Ala Pro Pro Leu Pro Pro Gln Asp Trp Arg Lys Pro Gly Pro  
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Pro  
705

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Met Ser Leu Val Cys Ala Leu Leu Asn Thr  
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tgc cag gca cac agg gtg cat gac gac aag cct aat att gtc cta atc 199  
Cys Gln Ala His Arg Val His Asp Asp Lys Pro Asn Ile Val Leu Ile  
15 20 25

atg gtt gat gac ctg ggt att gga gat ctg ggc tgc tac ggc aat gac 247  
Met Val Asp Asp Leu Gly Ile Gly Asp Leu Gly Cys Tyr Gly Asn Asp  
30 35 40

acc atg agg acg cct cac atc gac cgc ctt gcc agg gaa ggc gtg cga 295  
Thr Met Arg Thr Pro His Ile Asp Arg Leu Ala Arg Glu Gly Val Arg  
45 50 55

ctg act cag cac atc tct gcc gcc tcc ctc tgc agc cca agc cgg tcc	343
Leu Thr Gln His Ile Ser Ala Ala Ser Leu Cys Ser Pro Ser Arg Ser	
60 65 70	
gcg ttc ttg acg gga aga tac ccc atc cga tca ggt atg gtt tct agt	391
Ala Phe Leu Thr Gly Arg Tyr Pro Ile Arg Ser Gly Met Val Ser Ser	
75 80 85 90	
ggt aat aga cgt gtc atc caa aat ctt gca gtc ccc gca ggc ctc cct	439
Gly Asn Arg Arg Val Ile Gln Asn Leu Ala Val Pro Ala Gly Leu Pro	
95 100 105	
ctt aat gag aca aca ctt gca gcc ttg cta aag aag caa gga tac agc	487
Leu Asn Glu Thr Thr Leu Ala Ala Leu Leu Lys Lys Gln Gly Tyr Ser	
110 115 120	
acg ggg ctt ata ggt aag tta ggc aaa tgg cac ctg ggt ttg agc tgc	535
Thr Gly Leu Ile Gly Lys Leu Gly Lys Trp His Leu Gly Leu Ser Cys	
125 130 135	
gcc tct cgg aat gat cac tgt tac cac ccg ctc aac cat ggt ttt cac	583
Ala Ser Arg Asn Asp His Cys Tyr His Pro Leu Asn His Gly Phe His	
140 145 150	
tac ttt tac ggg gtg cct ttt gga ctt tta agc gac tgc cag gca tcc	631
Tyr Phe Tyr Gly Val Pro Phe Gly Leu Leu Ser Asp Cys Gln Ala Ser	
155 160 165 170	
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Lys Thr Pro Glu Leu His Arg Trp Leu Arg Ile Lys Leu Trp Ile Ser	
175 180 185	
acg gta gcc ctt gcc ctg gtt cct ttt ctg ctt ctc att ccc aag ttc	727
Thr Val Ala Leu Ala Leu Val Pro Phe Leu Leu Leu Ile Pro Lys Phe	
190 195 200	
gcc cgc tgg ttc tca gtg cca tgg aag gtc atc ttt gtc ttt gct ctc	775
Ala Arg Trp Phe Ser Val Pro Trp Lys Val Ile Phe Val Phe Ala Leu	
205 210 215	
ctc gcc ttt ctg ttt ttc act tcc tgg tac tct agt tat gga ttt act	823
Leu Ala Phe Leu Phe Phe Thr Ser Trp Tyr Ser Ser Tyr Gly Phe Thr	
220 225 230	
cga cgt tgg aat tgc atc ctt atg agg aac cat gaa att atc cag cag	871
Arg Arg Trp Asn Cys Ile Leu Met Arg Asn His Glu Ile Ile Gln Gln	
235 240 245 250	
cca atg aaa gag gag aaa gta gct tcc ctc atg ctg aag gag gca ctt	919
Pro Met Lys Glu Glu Lys Val Ala Ser Leu Met Leu Lys Glu Ala Leu	
255 260 265	
gct ttc att gaa agg tac aaa agg gaa cct ttt ctc ctc ttt ttt tcc	967
Ala Phe Ile Glu Arg Tyr Lys Arg Glu Pro Phe Leu Leu Phe Phe Ser	
270 275 280	
ttc ctg cac gta cat act cca ctc atc tcc aaa aag aag ttt gtt ggg	1015

Phe	Leu	His	Val	His	Thr	Pro	Leu	Ile	Ser	Lys	Lys	Lys	Phe	Val	Gly		
		285					290						295				
cgc	agt	aaa	tat	ggc	agg	tat	ggg	gac	aat	gta	gaa	gaa	atg	gat	tgg	1063	
Arg	Ser	Lys	Tyr	Gly	Arg	Tyr	Gly	Asp	Asn	Val	Glu	Glu	Met	Asp	Trp		
	300					305					310						
atg	gtg	ggg	ggg	aaa	atc	ctg	gat	gcc	ctg	gac	cag	gag	cgc	ctg	gcc	1111	
Met	Val	Gly	Gly	Lys	Ile	Leu	Asp	Ala	Leu	Asp	Gln	Glu	Arg	Leu	Ala		
315					320					325					330		
aac	cac	acc	ttg	gtg	tac	ttc	acc	tct	gac	aac	ggg	ggc	cac	ctg	gag	1159	
Asn	His	Thr	Leu	Val	Tyr	Phe	Thr	Ser	Asp	Asn	Gly	Gly	His	Leu	Glu		
			335						340				345				
ccc	ctg	gac	ggg	gct	ggt	cag	ctg	ggg	ggc	tgg	aac	ggg	atc	tac	aaa	1207	
Pro	Leu	Asp	Gly	Ala	Val	Gln	Leu	Gly	Gly	Trp	Asn	Gly	Ile	Tyr	Lys		
			350					355					360				
ggg	ggc	aaa	gga	atg	gga	gga	tgg	gaa	gga	ggg	atc	cgt	gtg	cca	ggg	1255	
Gly	Gly	Lys	Gly	Met	Gly	Gly	Trp	Glu	Gly	Gly	Ile	Arg	Val	Pro	Gly		
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ata	ttc	cgg	tgg	ccg	tca	gtc	ttg	gag	gct	ggg	aga	gtg	atc	aat	gag	1303	
Ile	Phe	Arg	Trp	Pro	Ser	Val	Leu	Glu	Ala	Gly	Arg	Val	Ile	Asn	Glu		
	380					385					390						
ccc	acc	agc	tta	atg	gac	atc	tat	ccg	acg	ctg	tct	tat	ata	ggc	gga	1351	
Pro	Thr	Ser	Leu	Met	Asp	Ile	Tyr	Pro	Thr	Leu	Ser	Tyr	Ile	Gly	Gly		
395					400					405				410			
ggg	atc	ttg	tcc	cag	gac	aga	gtg	att	gac	ggc	cag	aac	cta	atg	ccc	1399	
Gly	Ile	Leu	Ser	Gln	Asp	Arg	Val	Ile	Asp	Gly	Gln	Asn	Leu	Met	Pro		
				415					420					425			
ctg	ctg	gaa	gga	agg	gcg	tcc	cac	tcc	gac	cac	gag	ttc	ctc	ttc	cac	1447	
Leu	Leu	Glu	Gly	Arg	Ala	Ser	His	Ser	Asp	His	Glu	Phe	Leu	Phe	His		
			430					435					440				
tac	tgt	ggg	gtc	tat	ctg	cac	acg	gtc	agg	tgg	cat	cag	aag	gac	act	1495	
Tyr	Cys	Gly	Val	Tyr	Leu	His	Thr	Val	Arg	Trp	His	Gln	Lys	Asp	Thr		
		445					450					455					
gtg	tgg	aaa	gct	cat	tat	gtg	act	cct	aaa	ttc	tac	cct	gaa	gga	aca	1543	
Val	Trp	Lys	Ala	His	Tyr	Val	Thr	Pro	Lys	Phe	Tyr	Pro	Glu	Gly	Thr		
		460				465					470						
ggg	ggc	tgc	tat	ggg	agt	gga	ata	tgt	tca	tgt	tcg	ggg	gat	gta	acc	1591	
Gly	Ala	Cys	Tyr	Gly	Ser	Gly	Ile	Cys	Ser	Cys	Ser	Gly	Asp	Val	Thr		
475					480					485				490			
tac	cac	gac	cca	cca	ctc	ctc	ttt	gac	atc	tca	aga	gac	cct	tca	gaa	1639	
Tyr	His	Asp	Pro	Pro	Leu	Leu	Phe	Asp	Ile	Ser	Arg	Asp	Pro	Ser	Glu		
				495					500					505			
gcc	ctt	cca	ctg	aac	cct	gac	aat	gag	cca	tta	ttt	gac	tcc	gtg	atc	1687	
Ala	Leu	Pro	Leu	Asn	Pro	Asp	Asn	Glu	Pro	Leu	Phe	Asp	Ser	Val	Ile		

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Lys Lys Met Glu Ala Ala Ile Arg Glu His Arg Arg Thr Leu Thr Pro			
525	530	535	
gtc cca cag cag ttc tct gtg ttc aac aca att tgg aaa cca tgg ctg			1783
Val Pro Gln Gln Phe Ser Val Phe Asn Thr Ile Trp Lys Pro Trp Leu			
540	545	550	
cag cct tgc tgt ggg acc ttc ccc ttc tgt ggg tgt gac aag gaa gat			1831
Gln Pro Cys Cys Gly Thr Phe Pro Phe Cys Gly Cys Asp Lys Glu Asp			
555	560	565	570
gac atc ctt ccc atg gct ccc tgagaccatg cggaccacgt gttaccacc			1882
Asp Ile Leu Pro Met Ala Pro			
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Ile Gly Asp Leu Gly Cys Tyr Gly Asn Asp Thr Met Arg Thr Pro His			
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Ile Asp Arg Leu Ala Arg Glu Gly Val Arg Leu Thr Gln His Ile Ser			
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Ala Ala Ser Leu Cys Ser Pro Ser Arg Ser Ala Phe Leu Thr Gly Arg			
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Tyr Pro Ile Arg Ser Gly Met Val Ser Ser Gly Asn Arg Arg Val Ile			
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Gln Asn Leu Ala Val Pro Ala Gly Leu Pro Leu Asn Glu Thr Thr Leu			
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Ala Ala Leu Leu Lys Lys Gln Gly Tyr Ser Thr Gly Leu Ile Gly Lys			
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Leu Gly Lys Trp His Leu Gly Leu Ser Cys Ala Ser Arg Asn Asp His			

130	135	140
Cys Tyr His Pro Leu Asn His Gly Phe His Tyr Phe Tyr Gly Val Pro		
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Phe Gly Leu Leu Ser Asp Cys Gln Ala Ser Lys Thr Pro Glu Leu His		
	165	170 175
Arg Trp Leu Arg Ile Lys Leu Trp Ile Ser Thr Val Ala Leu Ala Leu		
	180	185 190
Val Pro Phe Leu Leu Leu Ile Pro Lys Phe Ala Arg Trp Phe Ser Val		
	195	200 205
Pro Trp Lys Val Ile Phe Val Phe Ala Leu Leu Ala Phe Leu Phe Phe		
	210	215 220
Thr Ser Trp Tyr Ser Ser Tyr Gly Phe Thr Arg Arg Trp Asn Cys Ile		
225	230	235 240
Leu Met Arg Asn His Glu Ile Ile Gln Gln Pro Met Lys Glu Glu Lys		
	245	250 255
Val Ala Ser Leu Met Leu Lys Glu Ala Leu Ala Phe Ile Glu Arg Tyr		
	260	265 270
Lys Arg Glu Pro Phe Leu Leu Phe Phe Ser Phe Leu His Val His Thr		
	275	280 285
Pro Leu Ile Ser Lys Lys Lys Phe Val Gly Arg Ser Lys Tyr Gly Arg		
	290	295 300
Tyr Gly Asp Asn Val Glu Glu Met Asp Trp Met Val Gly Gly Lys Ile		
305	310	315 320
Leu Asp Ala Leu Asp Gln Glu Arg Leu Ala Asn His Thr Leu Val Tyr		
	325	330 335
Phe Thr Ser Asp Asn Gly Gly His Leu Glu Pro Leu Asp Gly Ala Val		
	340	345 350
Gln Leu Gly Gly Trp Asn Gly Ile Tyr Lys Gly Gly Lys Gly Met Gly		
	355	360 365
Gly Trp Glu Gly Gly Ile Arg Val Pro Gly Ile Phe Arg Trp Pro Ser		
	370	375 380
Val Leu Glu Ala Gly Arg Val Ile Asn Glu Pro Thr Ser Leu Met Asp		
385	390	395 400
Ile Tyr Pro Thr Leu Ser Tyr Ile Gly Gly Gly Ile Leu Ser Gln Asp		
	405	410 415
Arg Val Ile Asp Gly Gln Asn Leu Met Pro Leu Leu Glu Gly Arg Ala		
	420	425 430
Ser His Ser Asp His Glu Phe Leu Phe His Tyr Cys Gly Val Tyr Leu		

435	440	445
His Thr Val Arg Trp His Gln Lys Asp Thr Val Trp Lys Ala His Tyr		
450	455	460
Val Thr Pro Lys Phe Tyr Pro Glu Gly Thr Gly Ala Cys Tyr Gly Ser		
465	470	475 480
Gly Ile Cys Ser Cys Ser Gly Asp Val Thr Tyr His Asp Pro Pro Leu		
	485	490 495
Leu Phe Asp Ile Ser Arg Asp Pro Ser Glu Ala Leu Pro Leu Asn Pro		
	500	505 510
Asp Asn Glu Pro Leu Phe Asp Ser Val Ile Lys Lys Met Glu Ala Ala		
	515	520 525
Ile Arg Glu His Arg Arg Thr Leu Thr Pro Val Pro Gln Gln Phe Ser		
	530	535 540
Val Phe Asn Thr Ile Trp Lys Pro Trp Leu Gln Pro Cys Cys Gly Thr		
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Phe Pro Phe Cys Gly Cys Asp Lys Glu Asp Asp Ile Leu Pro Met Ala		
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 Met Ala

106

gcc cta ttc cta cgt ggt ttt gtc caa ata ggg aac tgc aag act ggg  
 Ala Leu Phe Leu Arg Gly Phe Val Gln Ile Gly Asn Cys Lys Thr Gly  
 5 10 15

154

ata tct aag tca aaa gaa gca ttc att gaa gca gtg gaa aga aag aag  
 Ile Ser Lys Ser Lys Glu Ala Phe Ile Glu Ala Val Glu Arg Lys Lys  
 20 25 30

202

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 Lys Asp Arg Leu Val Leu Tyr Phe Lys Ser Gly Lys Tyr Ser Thr Phe  
 35 40 45 50

250

cgg cta agt gat aat att caa aat gta gtc ctt aaa tcc tat aga gga Arg Leu Ser Asp Asn Ile Gln Asn Val Val Leu Lys Ser Tyr Arg Gly 55 60 65	298
aac caa aat cac ctg cat tta act tta caa aat aat aat ggc ttg ttt Asn Gln Asn His Leu His Leu Thr Leu Gln Asn Asn Asn Gly Leu Phe 70 75 80	346
att gaa gga tta tcc tcc aca gat gct gaa caa ttg aag ata ttc ttg Ile Glu Gly Leu Ser Ser Thr Asp Ala Glu Gln Leu Lys Ile Phe Leu 85 90 95	394
gac aga gtt cat caa aac gag gtt cag cca cct gtg aga cct ggt aag Asp Arg Val His Gln Asn Glu Val Gln Pro Pro Val Arg Pro Gly Lys 100 105 110	442
ggg ggg agt gtc ttt tct agc aca aca cag aag gaa atc aac aaa act Gly Gly Ser Val Phe Ser Ser Thr Thr Gln Lys Glu Ile Asn Lys Thr 115 120 125 130	490
tca ttc cac aaa gtt gat gag aaa tca agt agc aaa tct ttt gag ata Ser Phe His Lys Val Asp Glu Lys Ser Ser Ser Lys Ser Phe Glu Ile 135 140 145	538
gca aaa gga agt ggg aca ggt gtc ctt cag agg atg cct ttg ctt aca Ala Lys Gly Ser Gly Thr Gly Val Leu Gln Arg Met Pro Leu Leu Thr 150 155 160	586
tca aaa ttg aca ctt act tgc gga gag tta tca gaa aat cag cac aag Ser Lys Leu Thr Leu Thr Cys Gly Glu Leu Ser Glu Asn Gln His Lys 165 170 175	634
aag agg aaa aga atg ctc tca tct agc tca gag atg aat gag gaa ttc Lys Arg Lys Arg Met Leu Ser Ser Ser Ser Glu Met Asn Glu Glu Phe 180 185 190	682
ttg aaa gaa aat aat tct gta gaa tac aag aaa tcc aag gca gat tgt Leu Lys Glu Asn Asn Ser Val Glu Tyr Lys Lys Ser Lys Ala Asp Cys 195 200 205 210	730
tcg agg tgt gta agc tat aat cga gag aaa caa ttg aag tta aaa gag Ser Arg Cys Val Ser Tyr Asn Arg Glu Lys Gln Leu Lys Leu Lys Glu 215 220 225	778
tta gaa gag aat aag aaa ttg gaa tgt gaa tct tca tgc atc atg aac Leu Glu Glu Asn Lys Lys Leu Glu Cys Glu Ser Ser Cys Ile Met Asn 230 235 240	826
gcc act gga aat cct tac cta gat gac att ggt ctt ctc caa gct ctc Ala Thr Gly Asn Pro Tyr Leu Asp Asp Ile Gly Leu Leu Gln Ala Leu 245 250 255	874
act gag aaa atg gtt ttg gta ttt ctg tta caa caa ggg tat agt gac Thr Glu Lys Met Val Leu Val Phe Leu Leu Gln Gln Gly Tyr Ser Asp 260 265 270	922



ggt tac aca aag tgg gat aaa tta aaa cta ttt ttt gaa tta ttt cca	970
Gly Tyr Thr Lys Trp Asp Lys Leu Lys Leu Phe Phe Glu Leu Phe Pro	
275 280 285 290	
gag aaa ata tgc cac ggc ctc ccc aat ttg gga aac acc tgt tat atg	1018
Glu Lys Ile Cys His Gly Leu Pro Asn Leu Gly Asn Thr Cys Tyr Met	
295 300 305	
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Asn Ala Val Leu Gln Ser Leu Leu Ser Ile Pro Ser Phe Ala Asp Asp	
310 315 320	
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Leu Leu Asn Gln Ser Phe Pro Trp Gly Lys Ile Pro Leu Asn Ala Leu	
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acc atg tgc ttg gca cgg cta ctt ttt ttt aaa gat acc tat aat ata	1162
Thr Met Cys Leu Ala Arg Leu Leu Phe Phe Lys Asp Thr Tyr Asn Ile	
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gaa atc aag gag atg tta ctc ttg aat ctt aaa aag gcc att tca gca	1210
Glu Ile Lys Glu Met Leu Leu Leu Asn Leu Lys Lys Ala Ile Ser Ala	
355 360 365 370	
gct gca gag ata ttc cat ggc aat gca cag aac gat gct cat gag ttt	1258
Ala Ala Glu Ile Phe His Gly Asn Ala Gln Asn Asp Ala His Glu Phe	
375 380 385	
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Leu Ala His Cys Leu Asp Gln Leu Lys Asp Asn Met Glu Lys Leu Asn	
390 395 400	
aca att tgg aag cct aaa agt gaa ttt ggg gaa gat aat ttt cct aaa	1354
Thr Ile Trp Lys Pro Lys Ser Glu Phe Gly Glu Asp Asn Phe Pro Lys	
405 410 415	
cag gtt ttt gct gat gat cct gac acc agt ggg ttt tct tgc cct gtc	1402
Gln Val Phe Ala Asp Asp Pro Asp Thr Ser Gly Phe Ser Cys Pro Val	
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Cys Gly Gln Val Ile Leu Lys Thr Glu Leu Asn Asn Tyr Leu Ser Ile	
455 460 465	
aac ctt ccc caa aga ata aaa gca cat cct tca tct att cag tct act	1546
Asn Leu Pro Gln Arg Ile Lys Ala His Pro Ser Ser Ile Gln Ser Thr	
470 475 480	
ttt gat ctt ttt ttt gga gca gaa gag ctt gag tat aaa tgt gca aaa	1594
Phe Asp Leu Phe Phe Gly Ala Glu Glu Leu Glu Tyr Lys Cys Ala Lys	
485 490 495	
tgt gag cac aag act tcc gtt gga gtg cac tca ttc agt agg cta cct	1642

Cys Glu His Lys Thr Ser Val Gly Val His Ser Phe Ser Arg Leu Pro	
500 505 510	
aga atc ctt att gtt cac ctc aaa cgc tat agc ttg aat gag ttt tgt	1690
Arg Ile Leu Ile Val His Leu Lys Arg Tyr Ser Leu Asn Glu Phe Cys	
515 520 525 530	
gca tta aag aag aat gac cag gaa gtc atc att tcc aaa tat tta aag	1738
Ala Leu Lys Lys Asn Asp Gln Glu Val Ile Ile Ser Lys Tyr Leu Lys	
535 540 545	
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Val Ser Ser His Cys Asn Glu Gly Thr Arg Pro Pro Leu Pro Leu Ser	
550 555 560	
gag gat gga gaa att aca gat ttc caa tta tta aaa gtt att cga aag	1834
Glu Asp Gly Glu Ile Thr Asp Phe Gln Leu Leu Lys Val Ile Arg Lys	
565 570 575	
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Met Thr Ser Gly Asn Ile Ser Val Ser Trp Pro Ala Thr Lys Glu Ser	
580 585 590	
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Lys Asp Ile Leu Ala Pro His Ile Gly Ser Asp Lys Glu Ser Glu Gln	
595 600 605 610	
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Lys Lys Gly Gln Thr Val Phe Lys Gly Ala Ser Arg Arg Gln Gln Gln	
615 620 625	
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Lys Tyr Leu Gly Lys Asn Ser Lys Pro Asn Glu Leu Glu Ser Val Tyr	
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Ser Gly Asp Arg Ala Phe Ile Glu Lys Glu Pro Leu Ala His Leu Met	
645 650 655	
acg tat ctg gaa gat acc tca ctt tgt cag ttc cac aaa gct gga ggt	2122
Thr Tyr Leu Glu Asp Thr Ser Leu Cys Gln Phe His Lys Ala Gly Gly	
660 665 670	
aaa cct gcc agc agc cca ggc aca cct ctc tca aaa gtt gac ttt caa	2170
Lys Pro Ala Ser Ser Pro Gly Thr Pro Leu Ser Lys Val Asp Phe Gln	
675 680 685 690	
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Thr Val Pro Glu Asn Pro Lys Arg Lys Lys Tyr Val Lys Thr Ser Lys	
695 700 705	
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Phe Val Ala Phe Asp Arg Ile Ile Asn Pro Thr Lys Asp Leu Tyr Glu	
710 715 720	
gat aaa aat atc aga att cca gaa aga ttc caa aaa gtg tct gaa cag	2314
Asp Lys Asn Ile Arg Ile Pro Glu Arg Phe Gln Lys Val Ser Glu Gln	

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Thr Gln Gln Cys Asp Gly Met Arg Ile Cys Glu Gln Ala Pro Gln Gln			
740	745	750	
gca ctg cct caa agc ttt cca aag cca ggc acc cag ggg cac aca aag			2410
Ala Leu Pro Gln Ser Phe Pro Lys Pro Gly Thr Gln Gly His Thr Lys			
755	760	765	770
aac ctc cta aga cct aca aaa tta aat cta cag aag tct aac agg aat			2458
Asn Leu Leu Arg Pro Thr Lys Leu Asn Leu Gln Lys Ser Asn Arg Asn			
775	780	785	
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Ser Leu Leu Ala Leu Gly Ser Asn Lys Asn Pro Arg Asn Lys Asp Ile			
790	795	800	
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Leu Asp Lys Ile Lys Ser Lys Ala Lys Glu Thr Lys Arg Asn Asp Asp			
805	810	815	
aag gga gat cat acc tac cgg ctc att agt gtt gtc agc cat ctt ggg			2602
Lys Gly Asp His Thr Tyr Arg Leu Ile Ser Val Val Ser His Leu Gly			
820	825	830	
aag act cta aag tca ggc cat tat atc tgt gat gcc tat gac ttt gag			2650
Lys Thr Leu Lys Ser Gly His Tyr Ile Cys Asp Ala Tyr Asp Phe Glu			
835	840	845	850
aaa cag atc tgg ttc act tac gat gat atg cgg gtg tta ggt atc cag			2698
Lys Gln Ile Trp Phe Thr Tyr Asp Asp Met Arg Val Leu Gly Ile Gln			
855	860	865	
gag gcc cag atg cag gag gat agg cgt tgc act ggg tac atc ttc ttt			2746
Glu Ala Gln Met Gln Glu Asp Arg Arg Cys Thr Gly Tyr Ile Phe Phe			
870	875	880	
tac atg cat aat gag atc ttt gaa gag atg ttg aaa aga gaa gag aat			2794
Tyr Met His Asn Glu Ile Phe Glu Glu Met Leu Lys Arg Glu Glu Asn			
885	890	895	
gcc cag ctt aat agc aag gag gta gag gag acc ctt cag aag gaa			2839
Ala Gln Leu Asn Ser Lys Glu Val Glu Glu Thr Leu Gln Lys Glu			
900	905	910	
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3005

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			20				25						30		
Lys	Lys	Lys	Asp	Arg	Leu	Val	Leu	Tyr	Phe	Lys	Ser	Gly	Lys	Tyr	Ser
		35					40					45			
Thr	Phe	Arg	Leu	Ser	Asp	Asn	Ile	Gln	Asn	Val	Val	Leu	Lys	Ser	Tyr
	50					55					60				
Arg	Gly	Asn	Gln	Asn	His	Leu	His	Leu	Thr	Leu	Gln	Asn	Asn	Asn	Gly
65					70				75						80
Leu	Phe	Ile	Glu	Gly	Leu	Ser	Ser	Thr	Asp	Ala	Glu	Gln	Leu	Lys	Ile
			85					90						95	
Phe	Leu	Asp	Arg	Val	His	Gln	Asn	Glu	Val	Gln	Pro	Pro	Val	Arg	Pro
		100						105					110		
Gly	Lys	Gly	Gly	Ser	Val	Phe	Ser	Ser	Thr	Thr	Gln	Lys	Glu	Ile	Asn
	115						120					125			
Lys	Thr	Ser	Phe	His	Lys	Val	Asp	Glu	Lys	Ser	Ser	Ser	Lys	Ser	Phe
	130					135						140			
Glu	Ile	Ala	Lys	Gly	Ser	Gly	Thr	Gly	Val	Leu	Gln	Arg	Met	Pro	Leu
145					150					155					160
Leu	Thr	Ser	Lys	Leu	Thr	Leu	Thr	Cys	Gly	Glu	Leu	Ser	Glu	Asn	Gln
			165						170					175	
His	Lys	Lys	Arg	Lys	Arg	Met	Leu	Ser	Ser	Ser	Ser	Glu	Met	Asn	Glu
		180						185					190		
Glu	Phe	Leu	Lys	Glu	Asn	Asn	Ser	Val	Glu	Tyr	Lys	Lys	Ser	Lys	Ala
	195						200					205			
Asp	Cys	Ser	Arg	Cys	Val	Ser	Tyr	Asn	Arg	Glu	Lys	Gln	Leu	Lys	Leu
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Lys	Glu	Leu	Glu	Glu	Asn	Lys	Lys	Leu	Glu	Cys	Glu	Ser	Ser	Cys	Ile
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Arg Lys Met Thr Ser Gly Asn Ile Ser Val Ser Trp Pro Ala Thr Lys						
	580		585		590	
Glu Ser Lys Asp Ile Leu Ala Pro His Ile Gly Ser Asp Lys Glu Ser						
	595		600		605	
Glu Gln Lys Lys Gly Gln Thr Val Phe Lys Gly Ala Ser Arg Arg Gln						
	610		615		620	
Gln Gln Lys Tyr Leu Gly Lys Asn Ser Lys Pro Asn Glu Leu Glu Ser						
	625		630		635	640
Val Tyr Ser Gly Asp Arg Ala Phe Ile Glu Lys Glu Pro Leu Ala His						
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Leu Met Thr Tyr Leu Glu Asp Thr Ser Leu Cys Gln Phe His Lys Ala						
	660		665			670
Gly Gly Lys Pro Ala Ser Ser Pro Gly Thr Pro Leu Ser Lys Val Asp						
	675		680		685	
Phe Gln Thr Val Pro Glu Asn Pro Lys Arg Lys Lys Tyr Val Lys Thr						
	690		695		700	
Ser Lys Phe Val Ala Phe Asp Arg Ile Ile Asn Pro Thr Lys Asp Leu						
	705		710		715	720
Tyr Glu Asp Lys Asn Ile Arg Ile Pro Glu Arg Phe Gln Lys Val Ser						
		725		730		735
Glu Gln Thr Gln Gln Cys Asp Gly Met Arg Ile Cys Glu Gln Ala Pro						
		740		745		750
Gln Gln Ala Leu Pro Gln Ser Phe Pro Lys Pro Gly Thr Gln Gly His						
	755		760		765	
Thr Lys Asn Leu Leu Arg Pro Thr Lys Leu Asn Leu Gln Lys Ser Asn						
	770		775		780	
Arg Asn Ser Leu Leu Ala Leu Gly Ser Asn Lys Asn Pro Arg Asn Lys						
	785		790		795	800
Asp Ile Leu Asp Lys Ile Lys Ser Lys Ala Lys Glu Thr Lys Arg Asn						
		805		810		815
Asp Asp Lys Gly Asp His Thr Tyr Arg Leu Ile Ser Val Val Ser His						
	820		825		830	
Leu Gly Lys Thr Leu Lys Ser Gly His Tyr Ile Cys Asp Ala Tyr Asp						
	835		840		845	
Phe Glu Lys Gln Ile Trp Phe Thr Tyr Asp Asp Met Arg Val Leu Gly						

850	855	860
Ile Gln Glu Ala Gln Met Gln Glu Asp Arg Arg Cys Thr Gly Tyr Ile		
865	870	875 880
Phe Phe Tyr Met His Asn Glu Ile Phe Glu Glu Met Leu Lys Arg Glu		
	885	890 895
Glu Asn Ala Gln Leu Asn Ser Lys Glu Val Glu Glu Thr Leu Gln Lys		
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Glu		

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Ala Glu Ala Gly Ala Leu Pro Ala Ala Ala Arg Met Gly Leu Glu Ala	
15 20 25	
ccg cga gga ggg cgg cgg cgg cag ccg gga cag cag cga cct ggg ccc	144
Pro Arg Gly Gly Arg Arg Arg Gln Pro Gly Gln Gln Arg Pro Gly Pro	
30 35 40	
ggc gca ggg gcc ccg gcg ggg cgg ccg gag ggg ggc ggg ccc tgg gcc	192
Gly Ala Gly Ala Pro Ala Gly Arg Pro Glu Gly Gly Gly Pro Trp Ala	
45 50 55 60	
cgg aca gag ggg tcc agc ctc cac agc gag cct gag agg gcc ggc ctc	240
Arg Thr Glu Gly Ser Ser Leu His Ser Glu Pro Glu Arg Ala Gly Leu	
65 70 75	
ggg cct gcg ccg ggg aca gag agt ccg cag gca gaa ttc tgg aca gac	288
Gly Pro Ala Pro Gly Thr Glu Ser Pro Gln Ala Glu Phe Trp Thr Asp	
80 85 90	
gga cag act gag ccc gcg gca gct ggc ctt gga gta gag acc gag agg	336
Gly Gln Thr Glu Pro Ala Ala Ala Gly Leu Gly Val Glu Thr Glu Arg	
95 100 105	
ccc aag caa aag acg gag cca gac agg tcc agc ctc cgg acg cat cta	384
Pro Lys Gln Lys Thr Glu Pro Asp Arg Ser Ser Leu Arg Thr His Leu	
110 115 120	
gaa tgg agc tgg tca gag ctg gag acg act tgt ctt tgg acg gag acc	432
Glu Trp Ser Trp Ser Glu Leu Glu Thr Thr Cys Leu Trp Thr Glu Thr	

125	130	135	140	
ggg aca gat ggc ctt tgg act gat ccg cac agg tcc gac ctc cag ttt				480
Gly Thr Asp Gly Leu Trp Thr Asp Pro His Arg Ser Asp Leu Gln Phe				
	145	150	155	
cag ccc gag gag gcc agc ccc tgg aca cag cca ggg gtt cat ggg ccc				528
Gln Pro Glu Glu Ala Ser Pro Trp Thr Gln Pro Gly Val His Gly Pro				
	160	165	170	
tgg aca gag ctg gaa acg cat ggg tca cag act cag cca gag agg gtc				576
Trp Thr Glu Leu Glu Thr His Gly Ser Gln Thr Gln Pro Glu Arg Val				
	175	180	185	
aag tcc tgg gct gat aac ctc tgg acc cac cag aac agt tcc agc ctc				624
Lys Ser Trp Ala Asp Asn Leu Trp Thr His Gln Asn Ser Ser Ser Leu				
	190	195	200	
cag act cac cca gaa gga gcc tgt ccc tca aaa gag cca agt gct gat				672
Gln Thr His Pro Glu Gly Ala Cys Pro Ser Lys Glu Pro Ser Ala Asp				
	205	210	215	220
ggc tcc tgg aaa gaa ttg tat act gat ggc tcc agg aca caa cag gat				720
Gly Ser Trp Lys Glu Leu Tyr Thr Asp Gly Ser Arg Thr Gln Gln Asp				
	225	230	235	
att gaa ggt ccc tgg aca gag cca tat act gat ggc tcc cag aaa aaa				768
Ile Glu Gly Pro Trp Thr Glu Pro Tyr Thr Asp Gly Ser Gln Lys Lys				
	240	245	250	
cag gat act gaa gca gcc agg aaa cag cct ggc act ggt ggt ttc caa				816
Gln Asp Thr Glu Ala Ala Arg Lys Gln Pro Gly Thr Gly Gly Phe Gln				
	255	260	265	
ata caa cag gat act gat ggc tcc tgg aca caa cct agc act gac ggt				864
Ile Gln Gln Asp Thr Asp Gly Ser Trp Thr Gln Pro Ser Thr Asp Gly				
	270	275	280	
tcc cag aca gca cct ggg aca gac tgc ctc ttg gga gag cct gag gat				912
Ser Gln Thr Ala Pro Gly Thr Asp Cys Leu Leu Gly Glu Pro Glu Asp				
	285	290	295	300
ggc cca tta gag gaa cca gag cct gga gaa ttg ctg act cac ctg tac				960
Gly Pro Leu Glu Glu Pro Glu Pro Gly Glu Leu Leu Thr His Leu Tyr				
	305	310	315	
tct cac ctg aag tgt agc ccc ctg tgc cct gtg ccc cgc ctc atc att				1008
Ser His Leu Lys Cys Ser Pro Leu Cys Pro Val Pro Arg Leu Ile Ile				
	320	325	330	
acc cct gag acc cct gag cct gag gcc cag cca gtg gga ccc ccc tcc				1056
Thr Pro Glu Thr Pro Glu Pro Glu Ala Gln Pro Val Gly Pro Pro Ser				
	335	340	345	
cgg gtt gag ggg ggc agc ggc ggc ttc tcc tct gcc tct tct ttc gac				1104
Arg Val Glu Gly Gly Ser Gly Gly Phe Ser Ser Ala Ser Ser Phe Asp				
	350	355	360	



gag tct gag gat gac gtg gtg gcc ggg ggc gga ggt gcc agc gat ccc	1152
Glu Ser Glu Asp Asp Val Val Ala Gly Gly Gly Gly Ala Ser Asp Pro	
365 370 375 380	
gag gac agg tct ggg agc aaa ccc tgg aag aag ctg aag aca gtt ctg	1200
Glu Asp Arg Ser Gly Ser Lys Pro Trp Lys Lys Leu Lys Thr Val Leu	
385 390 395	
aag tat tca ccc ttt gtg gtc tcc ttc cga aaa cac tac cct tgg gtc	1248
Lys Tyr Ser Pro Phe Val Val Ser Phe Arg Lys His Tyr Pro Trp Val	
400 405 410	
cag ctt tct gga cat gct ggg aac ttc cag gca gga gag gat ggt cgg	1296
Gln Leu Ser Gly His Ala Gly Asn Phe Gln Ala Gly Glu Asp Gly Arg	
415 420 425	
att ctg aaa cgt ttc tgt cag tgt gag cag cgc agc ctg gag cag ctg	1344
Ile Leu Lys Arg Phe Cys Gln Cys Glu Gln Arg Ser Leu Glu Gln Leu	
430 435 440	
atg aaa gac ccg ctg cga cct ttc gtg cct gcc tac tat ggc atg gtg	1392
Met Lys Asp Pro Leu Arg Pro Phe Val Pro Ala Tyr Tyr Gly Met Val	
445 450 455 460	
ctg cag gat ggc cag acc ttc aac cag atg gaa gac ctc ctg gct gac	1440
Leu Gln Asp Gly Gln Thr Phe Asn Gln Met Glu Asp Leu Leu Ala Asp	
465 470 475	
ttt gag ggc ccc tcc att atg gac tgc aag atg ggc agc agg acc tat	1488
Phe Glu Gly Pro Ser Ile Met Asp Cys Lys Met Gly Ser Arg Thr Tyr	
480 485 490	
ctg gaa gag gag cta gtg aag gca cgg gaa cgt ccc cgt ccc cgg aag	1536
Leu Glu Glu Glu Leu Val Lys Ala Arg Glu Arg Pro Arg Pro Arg Lys	
495 500 505	
gac atg tat gag aag atg gtg gct gtg gac cct ggg gcc cct acc cct	1584
Asp Met Tyr Glu Lys Met Val Ala Val Asp Pro Gly Ala Pro Thr Pro	
510 515 520	
gag gag cat gcc cag ggt gca gtc acc aag ccc cgc tac atg cag tgg	1632
Glu Glu His Ala Gln Gly Ala Val Thr Lys Pro Arg Tyr Met Gln Trp	
525 530 535 540	
agg gaa acc atg agc tcc acc tct acc ctg ggc ttc cgg atc gag ggc	1680
Arg Glu Thr Met Ser Ser Thr Ser Thr Leu Gly Phe Arg Ile Glu Gly	
545 550 555	
atc aag aag gca gat ggg acc tgt aac acc aac ttc aag aag acg cag	1728
Ile Lys Lys Ala Asp Gly Thr Cys Asn Thr Asn Phe Lys Lys Thr Gln	
560 565 570	
gca ctg gag cag gtg aca aaa gtg ctg gag gac ttc gtg gat gga gac	1776
Ala Leu Glu Gln Val Thr Lys Val Leu Glu Asp Phe Val Asp Gly Asp	
575 580 585	

cac gtc atc ctg caa aag tac gtg gca tgc cta gaa gaa ctt cgt gaa His Val Ile Leu Gln Lys Tyr Val Ala Cys Leu Glu Glu Leu Arg Glu 590 595 600	1824
gct ctg gag atc tcc ccc ttc ttc aag acc cac gag gtg gta ggc agc Ala Leu Glu Ile Ser Pro Phe Phe Lys Thr His Glu Val Val Gly Ser 605 610 615 620	1872
tcc ctc ctc ttc gtg cac gac cac acc ggc ctg gcc aag gtc tgg atg Ser Leu Leu Phe Val His Asp His Thr Gly Leu Ala Lys Val Trp Met 625 630 635	1920
ata gac ttc ggc aag acg gtg gcc ttg ccc gac cac cag acg ctc agc Ile Asp Phe Gly Lys Thr Val Ala Leu Pro Asp His Gln Thr Leu Ser 640 645 650	1968
cac agg ctg ccc tgg gct gag ggc aac cgt gag gac ggc tac ctc tgg His Arg Leu Pro Trp Ala Glu Gly Asn Arg Glu Asp Gly Tyr Leu Trp 655 660 665	2016
ggc ctg gac aac atg atc tgc ctc ctg cag ggg ctg gca cag agc Gly Leu Asp Asn Met Ile Cys Leu Leu Gln Gly Leu Ala Gln Ser 670 675 680	2061
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Pro Ala Gly Arg Pro Glu Gly Gly Gly Pro Trp Ala Arg Thr Glu Gly 50 55 60	
Ser Ser Leu His Ser Glu Pro Glu Arg Ala Gly Leu Gly Pro Ala Pro 65 70 75 80	
Gly Thr Glu Ser Pro Gln Ala Glu Phe Trp Thr Asp Gly Gln Thr Glu 85 90 95	
Pro Ala Ala Ala Gly Leu Gly Val Glu Thr Glu Arg Pro Lys Gln Lys	

100	105	110
Thr Glu Pro Asp Arg Ser Ser Leu Arg Thr His Leu Glu Trp Ser Trp		
115	120	125
Ser Glu Leu Glu Thr Thr Cys Leu Trp Thr Glu Thr Gly Thr Asp Gly		
130	135	140
Leu Trp Thr Asp Pro His Arg Ser Asp Leu Gln Phe Gln Pro Glu Glu		
145	150	155
Ala Ser Pro Trp Thr Gln Pro Gly Val His Gly Pro Trp Thr Glu Leu		
	165	170
Glu Thr His Gly Ser Gln Thr Gln Pro Glu Arg Val Lys Ser Trp Ala		
	180	185
Asp Asn Leu Trp Thr His Gln Asn Ser Ser Ser Leu Gln Thr His Pro		
	195	200
Glu Gly Ala Cys Pro Ser Lys Glu Pro Ser Ala Asp Gly Ser Trp Lys		
	210	215
Glu Leu Tyr Thr Asp Gly Ser Arg Thr Gln Gln Asp Ile Glu Gly Pro		
	225	230
Trp Thr Glu Pro Tyr Thr Asp Gly Ser Gln Lys Lys Gln Asp Thr Glu		
	245	250
Ala Ala Arg Lys Gln Pro Gly Thr Gly Gly Phe Gln Ile Gln Gln Asp		
	260	265
Thr Asp Gly Ser Trp Thr Gln Pro Ser Thr Asp Gly Ser Gln Thr Ala		
	275	280
Pro Gly Thr Asp Cys Leu Leu Gly Glu Pro Glu Asp Gly Pro Leu Glu		
	290	295
Glu Pro Glu Pro Gly Glu Leu Leu Thr His Leu Tyr Ser His Leu Lys		
	305	310
Cys Ser Pro Leu Cys Pro Val Pro Arg Leu Ile Ile Thr Pro Glu Thr		
	325	330
Pro Glu Pro Glu Ala Gln Pro Val Gly Pro Pro Ser Arg Val Glu Gly		
	340	345
Gly Ser Gly Gly Phe Ser Ser Ala Ser Ser Phe Asp Glu Ser Glu Asp		
	355	360
Asp Val Val Ala Gly Gly Gly Gly Ala Ser Asp Pro Glu Asp Arg Ser		
	370	375
Gly Ser Lys Pro Trp Lys Lys Leu Lys Thr Val Leu Lys Tyr Ser Pro		
	385	390
Phe Val Val Ser Phe Arg Lys His Tyr Pro Trp Val Gln Leu Ser Gly		
		395
		400

405	410	415
His Ala Gly Asn Phe Gln Ala Gly Glu Asp Gly Arg Ile Leu Lys Arg 420 425 430		
Phe Cys Gln Cys Glu Gln Arg Ser Leu Glu Gln Leu Met Lys Asp Pro 435 440 445		
Leu Arg Pro Phe Val Pro Ala Tyr Tyr Gly Met Val Leu Gln Asp Gly 450 455 460		
Gln Thr Phe Asn Gln Met Glu Asp Leu Leu Ala Asp Phe Glu Gly Pro 465 470 475 480		
Ser Ile Met Asp Cys Lys Met Gly Ser Arg Thr Tyr Leu Glu Glu Glu 485 490 495		
Leu Val Lys Ala Arg Glu Arg Pro Arg Pro Arg Lys Asp Met Tyr Glu 500 505 510		
Lys Met Val Ala Val Asp Pro Gly Ala Pro Thr Pro Glu Glu His Ala 515 520 525		
Gln Gly Ala Val Thr Lys Pro Arg Tyr Met Gln Trp Arg Glu Thr Met 530 535 540		
Ser Ser Thr Ser Thr Leu Gly Phe Arg Ile Glu Gly Ile Lys Lys Ala 545 550 555 560		
Asp Gly Thr Cys Asn Thr Asn Phe Lys Lys Thr Gln Ala Leu Glu Gln 565 570 575		
Val Thr Lys Val Leu Glu Asp Phe Val Asp Gly Asp His Val Ile Leu 580 585 590		
Gln Lys Tyr Val Ala Cys Leu Glu Glu Leu Arg Glu Ala Leu Glu Ile 595 600 605		
Ser Pro Phe Phe Lys Thr His Glu Val Val Gly Ser Ser Leu Leu Phe 610 615 620		
Val His Asp His Thr Gly Leu Ala Lys Val Trp Met Ile Asp Phe Gly 625 630 635 640		
Lys Thr Val Ala Leu Pro Asp His Gln Thr Leu Ser His Arg Leu Pro 645 650 655		
Trp Ala Glu Gly Asn Arg Glu Asp Gly Tyr Leu Trp Gly Leu Asp Asn 660 665 670		
Met Ile Cys Leu Leu Gln Gly Leu Ala Gln Ser 675 680		

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 <212>DNA  
 <213> Homo sapiens



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ggc aaa act ctg gtg atg gcc atc tat gac ttt gac cgc ttc tcc aaa Gly Lys Thr Leu Val Met Ala Ile Tyr Asp Phe Asp Arg Phe Ser Lys 220 225 230	771
cat gac atc att gga gag gta aag gtg cct atg aac aca gtg gac ctc His Asp Ile Ile Gly Glu Val Lys Val Pro Met Asn Thr Val Asp Leu 235 240 245 250	819
ggc cag ccc att gag gag tgg aga gac ctg caa ggc ggg gaa aag gag Gly Gln Pro Ile Glu Glu Trp Arg Asp Leu Gln Gly Gly Glu Lys Glu 255 260 265	867
gag ccg gag aag ctg ggc gac atc tgc acc tcc ctg cgc tat gtg ccc Glu Pro Glu Lys Leu Gly Asp Ile Cys Thr Ser Leu Arg Tyr Val Pro 270 275 280	915
acg gcc ggg aag ctc act gtc tgc atc ctg gag gct aag aac ctc aag Thr Ala Gly Lys Leu Thr Val Cys Ile Leu Glu Ala Lys Asn Leu Lys 285 290 295	963
aag atg gac gtg ggc ggc ctt tca gac ccg tac gtg aag atc cac ctg Lys Met Asp Val Gly Gly Leu Ser Asp Pro Tyr Val Lys Ile His Leu 300 305 310	1011
atg cag aat ggc aag agg ctc aag aag aag aag aca acc gtg aag aag Met Gln Asn Gly Lys Arg Leu Lys Lys Lys Lys Thr Thr Val Lys Lys 315 320 325 330	1059
aag acc ctg aac cca tac ttc aac gag tcc ttc agc ttt gag atc ccc Lys Thr Leu Asn Pro Tyr Phe Asn Glu Ser Phe Ser Phe Glu Ile Pro 335 340 345	1107
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Val Lys Val Pro Met Asn Thr Val Asp Leu Gly Gln Pro Ile Glu Glu  
 245 250 255  
 Trp Arg Asp Leu Gln Gly Gly Glu Lys Glu Glu Pro Glu Lys Leu Gly  
 260 265 270  
 Asp Ile Cys Thr Ser Leu Arg Tyr Val Pro Thr Ala Gly Lys Leu Thr  
 275 280 285  
 Val Cys Ile Leu Glu Ala Lys Asn Leu Lys Lys Met Asp Val Gly Gly  
 290 295 300  
 Leu Ser Asp Pro Tyr Val Lys Ile His Leu Met Gln Asn Gly Lys Arg  
 305 310 315 320  
 Leu Lys Lys Lys Lys Thr Thr Val Lys Lys Lys Thr Leu Asn Pro Tyr  
 325 330 335  
 Phe Asn Glu Ser Phe Ser Phe Glu Ile Pro Phe Glu Gln Ile Gln Lys  
 340 345 350  
 Val Gln Val Val Val Thr Val Leu Asp Tyr Asp Lys Leu Gly Lys Asn  
 355 360 365  
 Glu Ala Ile Gly Lys Ile Phe Val Gly Ser Asn Ala Thr Gly Thr Glu  
 370 375 380  
 Leu Arg His Trp Ser Asp Met Leu Ala Asn Pro Arg Arg Pro Ile Ala  
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Lys Asn Lys

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<211>1338

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<213> Homo sapiens

<220>

<221> CDS

<222>(6)..(1263)

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 Pro Ala Thr Thr Thr Ala Thr Met Pro Ile Gly Pro Val Asp Asn Ser  
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 act gag agt ggg ggt gct ggg gag agt cag gag gac atg ttt gcc aaa 143  
 Thr Glu Ser Gly Gly Ala Gly Glu Ser Gln Glu Asp Met Phe Ala Lys  
 35 40 45



ctg aag gag aag tta ttc aat gag ata aac aag att ccc tta cca ccc	191
Leu Lys Glu Lys Leu Phe Asn Glu Ile Asn Lys Ile Pro Leu Pro Pro	
50 55 60	
tgg gca ctg atc gcc att gct gtg gtt gct ggg ctc ctg ctt ctc acc	239
Trp Ala Leu Ile Ala Ile Ala Val Val Ala Gly Leu Leu Leu Thr	
65 70 75	
tgc tgc ttc tgc atc tgc aag aaa tgc tgc tgc aag aag aag aac	287
Cys Cys Phe Cys Ile Cys Lys Lys Cys Cys Cys Lys Lys Lys Lys Asn	
80 85 90	
aag aag gag aag ggc aaa ggt atg aag aat gcc atg aac atg aag gac	335
Lys Lys Glu Lys Gly Lys Gly Met Lys Asn Ala Met Asn Met Lys Asp	
95 100 105 110	
atg aaa ggg ggt cag gat gac gac gac gca gag aca ggc ctg act gag	383
Met Lys Gly Gly Gln Asp Asp Asp Asp Ala Glu Thr Gly Leu Thr Glu	
115 120 125	
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Gly Glu Gly Glu Gly Glu Glu Glu Lys Glu Pro Glu Asn Leu Gly Lys	
130 135 140	
ctg cag ttt tcc ctg gac tat gat ttt cag gct aat cag ctt act gtg	479
Leu Gln Phe Ser Leu Asp Tyr Asp Phe Gln Ala Asn Gln Leu Thr Val	
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ggc gtt ctg cag gct gct gaa ctg cct gcc ctg gac atg gga ggc acc	527
Gly Val Leu Gln Ala Ala Glu Leu Pro Ala Leu Asp Met Gly Gly Thr	
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tca gac cct tat gtc aag gtc ttc ctc ctt cct gac aag aag aag aaa	575
Ser Asp Pro Tyr Val Lys Val Phe Leu Leu Pro Asp Lys Lys Lys Lys	
175 180 185 190	
tat gag acc aaa gtc cat cgg aag aca ctg aac cct gcc ttc aat gaa	623
Tyr Glu Thr Lys Val His Arg Lys Thr Leu Asn Pro Ala Phe Asn Glu	
195 200 205	
acc ttc acc ttc aag gtg cca tac cag gag ctt ggg ggc aaa act ctg	671
Thr Phe Thr Phe Lys Val Pro Tyr Gln Glu Leu Gly Gly Lys Thr Leu	
210 215 220	
gtg atg gcc atc tat gac ttt gac cgc ttc tcc aaa cat gac atc att	719
Val Met Ala Ile Tyr Asp Phe Asp Arg Phe Ser Lys His Asp Ile Ile	
225 230 235	
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Gly Glu Val Lys Val Pro Met Asn Thr Val Asp Leu Gly Gln Pro Ile	
240 245 250	
gag gag tgg aga gac ctg caa ggc ggg gaa aag gag gag ccg gag aag	815
Glu Glu Trp Arg Asp Leu Gln Gly Gly Glu Lys Glu Glu Pro Glu Lys	
255 260 265 270	

ctg ggc gac atc tgc acc tcc ctg cgc tat gtg ccc acg gcc ggg aag	863
Leu Gly Asp Ile Cys Thr Ser Leu Arg Tyr Val Pro Thr Ala Gly Lys	
275 280 285	
ctc act gtc tgc atc ctg gag gct aag aac ctc aag aag atg gac gtg	911
Leu Thr Val Cys Ile Leu Glu Ala Lys Asn Leu Lys Lys Met Asp Val	
290 295 300	
ggc ggc ctt tca gac ccg tac gtg aag atc cac ctg atg cag aat ggc	959
Gly Gly Leu Ser Asp Pro Tyr Val Lys Ile His Leu Met Gln Asn Gly	
305 310 315	
aag agg ctc aag aag aag aag aca acc atg aag aag aag acc ctg aac	1007
Lys Arg Leu Lys Lys Lys Lys Thr Thr Met Lys Lys Lys Thr Leu Asn	
320 325 330	
cca tac ttc aac gag tcc ttc agc ttt gag atc ccc ttc gag cag att	1055
Pro Tyr Phe Asn Glu Ser Phe Ser Phe Glu Ile Pro Phe Glu Gln Ile	
335 340 345 350	
cag aaa gtc cag gta gtg gtc acc gtg ctg gac tat gac aag ctg ggc	1103
Gln Lys Val Gln Val Val Val Thr Val Leu Asp Tyr Asp Lys Leu Gly	
355 360 365	
aag aac gaa gcc ata ggc aag atc ttc gtg ggc agc aat gcc acg ggc	1151
Lys Asn Glu Ala Ile Gly Lys Ile Phe Val Gly Ser Asn Ala Thr Gly	
370 375 380	
aca gag ctg cgg cac tgg tcc gac atg ctg gcc aac ccc cgg agg ccc	1199
Thr Glu Leu Arg His Trp Ser Asp Met Leu Ala Asn Pro Arg Arg Pro	
385 390 395	
atc gcc cag tgg cac tcg ctc aag cct gag gag gag gtg ggt gca ctc	1247
Ile Ala Gln Trp His Ser Leu Lys Pro Glu Glu Glu Val Gly Ala Leu	
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ctg ggc aag aac aag tagacagcag cggctgggac cccacacctt tcacggacac	1302
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<210>346

<211>419

<212>PRT

<213> Homo sapiens

<400>346

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			20					25					30		

Ser	Gly	Gly	Ala	Gly	Glu	Ser	Gln	Glu	Asp	Met	Phe	Ala	Lys	Leu	Lys
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

35					40					45						
Glu	Lys	Leu	Phe	Asn	Glu	Ile	Asn	Lys	Ile	Pro	Leu	Pro	Pro	Trp	Ala	
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Leu	Ile	Ala	Ile	Ala	Val	Val	Ala	Gly	Leu	Leu	Leu	Leu	Thr	Cys	Cys	
65					70					75					80	
Phe	Cys	Ile	Cys	Lys	Lys	Cys	Cys	Cys	Lys	Lys	Lys	Lys	Asn	Lys	Lys	
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Glu	Lys	Gly	Lys	Gly	Met	Lys	Asn	Ala	Met	Asn	Met	Lys	Asp	Met	Lys	
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Gly	Gly	Gln	Asp	Asp	Asp	Asp	Ala	Glu	Thr	Gly	Leu	Thr	Glu	Gly	Glu	
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Gly	Glu	Gly	Glu	Glu	Glu	Lys	Glu	Pro	Glu	Asn	Leu	Gly	Lys	Leu	Gln	
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Phe	Ser	Leu	Asp	Tyr	Asp	Phe	Gln	Ala	Asn	Gln	Leu	Thr	Val	Gly	Val	
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Leu	Gln	Ala	Ala	Glu	Leu	Pro	Ala	Leu	Asp	Met	Gly	Gly	Thr	Ser	Asp	
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Pro	Tyr	Val	Lys	Val	Phe	Leu	Leu	Pro	Asp	Lys	Lys	Lys	Lys	Tyr	Glu	
					180					185					190	
Thr	Lys	Val	His	Arg	Lys	Thr	Leu	Asn	Pro	Ala	Phe	Asn	Glu	Thr	Phe	
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Val	Cys	Ile	Leu	Glu	Ala	Lys	Asn	Leu	Lys	Lys	Met	Asp	Val	Gly	Gly	
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Glu Ala Ile Gly Lys Ile Phe Val Gly Ser Asn Ala Thr Gly Thr Glu		
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Leu Arg His Trp Ser Asp Met Leu Ala Asn Pro Arg Arg Pro Ile Ala		
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Lys Asn Lys		

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Thr Leu Cys Glu Pro Lys Gly Arg Arg Leu Arg Pro Arg Gln Arg Arg	
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Asn Gln Glu Asn Val Thr Lys Asn Ser Leu Lys Leu Pro Gly Pro Leu	
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Gln Glu Gln Thr Gly Leu Gly Pro Pro His Leu Gly Ser Glu Leu Gly	
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Leu His Gly Gly Asp Thr Trp Asp Tyr Lys Ser His Val Met Thr Lys	
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Phe Ala Glu Glu Glu Asp Val Arg Arg Ser Phe Glu Asn Thr Ala Ala	
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gac tgg ccg gaa atg caa acg ttg gct ggt gct ttt gat tca gac cgg	389
Asp Trp Pro Glu Met Gln Thr Leu Ala Gly Ala Phe Asp Ser Asp Arg	
95 100 105	

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ctc aac aat gac aca aag ctc tgc aaa gac tgg gct gag aag cag cct Leu Asn Asn Asp Thr Lys Leu Cys Lys Asp Trp Ala Glu Lys Gln Pro 205 210 215	725
ccg ttc acc ctc ata cgc agt ctg ctg agg aag gtc ctg ctc cct gag Pro Phe Thr Leu Ile Arg Ser Leu Leu Arg Lys Val Leu Leu Pro Glu 220 225 230 235	773
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ctg cag gac gtg gtg ggg gag agc gtc gcc ccc ttc aac caa acg ctc Leu Gln Asp Val Val Gly Glu Ser Val Ala Pro Phe Asn Gln Thr Leu 320 325 330	1061

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Asp Gly Asp Asp Leu Met Val Gln Gly Leu Gly Glu Ser Glu Leu Arg	
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Ala Leu Phe His Met Asn Ile Leu Leu Pro Asp Ser His Cys Glu Glu	
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Tyr Tyr Val Leu Glu Gly Leu Glu Ile Glu Pro Ala Leu Cys Pro Leu	
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Leu Gly Val Lys Gln Lys Leu Leu His Trp Val Ser Leu Leu Gly Gln	
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Gln Pro Asn Ala Thr Thr Pro Gly Asp Thr Leu Asp Ala Phe His Cys	
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Asp Val Lys Gly Ile Phe Pro Arg Asp Glu Ser Ala Glu Ala Cys Pro	
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Glu Asp Phe Cys Ser Met Leu Gly Thr His Pro His Leu Arg Gln Leu	
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Asp Leu Gly Ser Ser Ile Leu Thr Glu Arg Ala Met Lys Thr Leu Cys	
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765 770 775	
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cac tgt agt ctg cag agg ctg atg ctg aat cag tgc cac ctg gac acg His Cys Ser Leu Gln Arg Leu Met Leu Asn Gln Cys His Leu Asp Thr	815	820	825	2549
gct ggc tgt ggt ttt ctt gca ctt gcg ctt atg ggt aac tca tgg ctg Ala Gly Cys Gly Phe Leu Ala Leu Ala Leu Met Gly Asn Ser Trp Leu	830	835	840	2597
acg cac ctg agc ctt agc atg aac cct gtg gaa gac aat ggc gtg aag Thr His Leu Ser Leu Ser Met Asn Pro Val Glu Asp Asn Gly Val Lys	845	850	855	2645
ctt ctg tgc gag gtc atg aga gaa cca tct tgt cat ctc cag gac ctg Leu Leu Cys Glu Val Met Arg Glu Pro Ser Cys His Leu Gln Asp Leu	860	865	870	2693
gag ttg gta aag tgt cat ctc acc gcc gcg tgc tgt gag agt ctg tcc Glu Leu Val Lys Cys His Leu Thr Ala Ala Cys Cys Glu Ser Leu Ser	880	885	890	2741
tgt gtg atc tcg agg agc aga cac ctg aag agc ctg gat ctc acg gac Cys Val Ile Ser Arg Ser Arg His Leu Lys Ser Leu Asp Leu Thr Asp	895	900	905	2789
aat gcc ctg ggt gac ggt ggg gtt gct gca ctg tgc gag gga ctg aag Asn Ala Leu Gly Asp Gly Gly Val Ala Ala Leu Cys Glu Gly Leu Lys	910	915	920	2837
caa aag aac agt gtt ctg acg aga ctc ggg ttg aag gca tgt gga ctg Gln Lys Asn Ser Val Leu Thr Arg Leu Gly Leu Lys Ala Cys Gly Leu	925	930	935	2885
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cat ctg acc agt cta aac ctg gtg cag aat aac ttc agt ccc aaa gga His Leu Thr Ser Leu Asn Leu Val Gln Asn Asn Phe Ser Pro Lys Gly	960	965	970	2981
atg atg aag ctg tgt tcg gcc ttt gcc tgt ccc acg tct aac tta cag Met Met Lys Leu Cys Ser Ala Phe Ala Cys Pro Thr Ser Asn Leu Gln	975	980	985	3029
ata att ggg ctg tgg aaa tgg cag tac cct gtg caa ata agg aag ctg Ile Ile Gly Leu Trp Lys Trp Gln Tyr Pro Val Gln Ile Arg Lys Leu	990	995	000	3077
ctg gag gaa gtg cag cta ctc aag ccc cga gtc gta att gac ggt agt Leu Glu Glu Val Gln Leu Leu Lys Pro Arg Val Val Ile Asp Gly Ser	005	010	015	3125



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 Val Ser Gln Cys Ala Leu Gln Lys Leu Ile Leu Glu Asp Cys Gly Ile  
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Gly Leu Lys Glu Thr Lys Asp Val Asp Phe Ala Val Val Leu Lys Asp	
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Phe Ile Leu Glu His Tyr Ser Glu Asp Gly Tyr Leu Tyr Glu Asp Glu	
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Ile Ala Asp Leu Met Asp Leu Arg Gln Ala Cys Arg Thr Pro Ser Arg	
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Leu Leu Leu Glu Lys Ala Ser Val Leu Phe Asn Thr Gly Ala Leu Tyr	
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Thr Gln Ile Gly Thr Arg Cys Asp Arg Gln Thr Gln Ala Gly Leu Glu	

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Phe Glu Lys Ile Ser Leu Pro Gly Ile Arg Asn Glu Phe Phe Met Leu			
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Val Lys Val Ala Gln Glu Ala Ala Lys Val Gly Glu Val Tyr Gln Gln			
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Gln Arg Arg Gln Leu Gly Lys Ser His Leu Arg Arg Ala Met Ala His			
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His Glu Glu Ser Val Arg Glu Ala Ser Leu Cys Lys Lys Leu Arg Ser			
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att gag gtg cta cag aag gtg ctg tgt gcc gca cag gaa cgc tcc cgg	1398		
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Tyr Cys Pro Ser Ser Pro Ala Asp Ser His Gly Leu Leu Pro Glu Ala	
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Gly Pro Leu Ser Val Leu Ser Ala Asn Lys Arg Trp Thr Pro Pro Arg	
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Ser Ile Arg Phe Thr Ala Glu Glu Gly Asp Leu Gly Phe Thr Leu Arg	
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Gly Asn Ala Pro Val Gln Val His Phe Leu Asp Pro Tyr Cys Ser Ala	
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Ser Val Ala Gly Ala Arg Glu Gly Asp Tyr Ile Val Ser Ile Gln Leu	
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Val Asp Cys Lys Trp Leu Thr Leu Ser Glu Val Met Lys Leu Leu Lys	
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Ser Phe Gly Glu Asp Glu Ile Glu Met Lys Val Val Ser Leu Leu Asp	
580 585 590 595	
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Ser Thr Ser Ser Met His Asn Lys Ser Ala Thr Tyr Ser Val Gly Met	
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Gln Lys Thr Tyr Ser Met Ile Cys Leu Ala Ile Asp Asp Asp Asp Lys	
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Lys Ala Val Arg Met Arg Thr Gly Ala Glu Asn Leu Leu Lys Val Ala  
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Ile Pro Leu Gly Leu Lys Glu Thr Lys Asp Val Asp Phe Ala Val Val  
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Glu Asp Glu Ile Ala Asp Leu Met Asp Leu Arg Gln Ala Cys Arg Thr  
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Gln Leu Gly Phe Val Glu Ser Arg Phe Phe Pro Pro Thr Arg Gln Met  
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 Asn Tyr Leu Lys Asp Thr Phe Thr His Thr Pro Ser Tyr Asp Met Ser  
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 Val Gly Met Gln Lys Thr Tyr Ser Met Ile Cys Leu Ala Ile Asp Asp  
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 Asp Asp Lys Thr Asp Lys Thr Lys Lys Ile Ser Lys Lys Leu Ser Phe  
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 Glu Lys Glu Asn Asp Gly Tyr Phe Arg Lys Gly Cys Asn Pro Leu Ala  
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 Gln Thr Gly Arg Ser Lys Leu Gln Asn Gln Arg Ala Ala Leu Asn Gln  
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Gln Ile Leu Lys Ala Val Arg Met Arg Thr Gly Ala Glu Asn Leu Leu	
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Lys Val Ala Thr Asn Ser Lys Val Arg Glu Gln Val Arg Leu Glu Leu	
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Ser Phe Val Asn Ser Asp Leu Gln Met Leu Lys Glu Glu Leu Glu Gly	
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Leu Asn Ile Ser Val Gly Val Tyr Gln Asn Thr Glu Glu Ala Phe Thr	
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Tyr Leu Tyr Glu Asp Glu Ile Ala Asp Leu Met Asp Leu Arg Gln Ala	
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Cys Arg Thr Pro Ser Arg Asp Glu Ala Gly Val Glu Leu Leu Met Thr	
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Tyr Phe Ile Gln Leu Gly Phe Val Glu Ser Arg Phe Phe Pro Pro Thr	
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Pro Val Ser Gln Gln Asn Leu Leu Leu Glu Lys Ala Ser Val Leu Phe	
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Gly Glu Val Tyr Gln Gln Leu His Ala Ala Met Ser Gln Ala Pro Val	
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Lys Glu Asn Ile Pro Tyr Ser Trp Ala Ser Leu Ala Cys Val Lys Ala	
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His His Tyr Ala Ala Leu Ala His Tyr Phe Thr Ala Ile Leu Leu Ile	
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Asp His Gln Val Lys Pro Gly Thr Asp Leu Asp His Gln Glu Lys Cys	
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Thr Leu Lys Asn Asp Gln Gln Arg Arg Gln Leu Gly Lys Ser His Leu	
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Arg Arg Ala Met Ala His His Glu Glu Ser Val Arg Glu Ala Ser Leu	
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Cys Lys Lys Leu Arg Ser Ile Glu Val Leu Gln Lys Val Leu Cys Ala	
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Asp Pro Tyr Cys Ser Ala Ser Val Ala Gly Ala Arg Glu Gly Asp Tyr	
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Thr Tyr Ser Val Gly Met	
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Ala Leu Pro Ser His Pro Ala Asp Ser Pro Val Ile Leu Gln Leu Gln
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Val Ala Gly Pro Gly Pro Thr Gly Pro Ile Lys Ile Phe Pro Phe Lys
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Cys Ser Ala Leu Pro Trp Leu Ala Leu Leu Ser Ala Asn Phe Ser Tyr
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Leu Ile Leu Arg Gly Asn Glu Leu Arg Ser Leu Pro Gly Leu Glu Gln	
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Tyr Leu Glu Gly Asn Pro Leu Trp Phe His Pro Glu His Arg Ala Ala	
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Thr Ala Gln Tyr Leu Ser Pro Arg Ala Arg Asp Ala Ala Thr Gly Phe	
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Arg Val Arg Val Arg Arg Ala Ser Ile Ser Glu Pro Ser Asp Thr Asp	
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ccg gag ccc cga act ctg aac ccc tct ccg gct ggt tgg ttc gtg cag	1248
Pro Glu Pro Arg Thr Leu Asn Pro Ser Pro Ala Gly Trp Phe Val Gln	

400	405	410	
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cgc aac tgg ctg cag tac agg agt cac ctg gag ccc tcc gga aac cct Arg Asn Trp Leu Gln Tyr Arg Ser His Leu Glu Pro Ser Gly Asn Pro 430 435 440			1344
ctg ccg gcc acc ccc act act tct gca ccc agt gca cct cca gcc agc Leu Pro Ala Thr Pro Thr Thr Ser Ala Pro Ser Ala Pro Pro Ala Ser 445 450 455 460			1392
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gaa tgc ttt ctc agg gtc act tct gcc cac ctg ttt gag gtg gaa ctc Glu Cys Phe Leu Arg Val Thr Ser Ala His Leu Phe Glu Val Glu Leu 560 565 570			1728
caa gca gct cgc acc ttg gag cga ctg gag ctc cag agt ctg gag gca Gln Ala Ala Arg Thr Leu Glu Arg Leu Glu Leu Gln Ser Leu Glu Ala 575 580 585			1776
gct gag ata gag ccg gag gcc cag gcc cag ggt ccc cct ctt gct gcg Ala Glu Ile Glu Pro Glu Ala Gln Ala Gln Gly Pro Pro Leu Ala Ala 590 595 600			1824
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cct gat gcc cac gca gct gtc cag gag ctg ctt gcc gtg ttg acc cca	1968
Pro Asp Ala His Ala Ala Val Gln Glu Leu Leu Ala Val Leu Thr Pro	
640 645 650	
gtc acc aat gtg gct cgg gaa cag ctt ggg gag gcc agg gac ctc ctg	2016
Val Thr Asn Val Ala Arg Glu Gln Leu Gly Glu Ala Arg Asp Leu Leu	
655 660 665	
ctg ggt aga ttc cag tgt cta cgc tgt ggc cat gag ttc aag cca gag	2064
Leu Gly Arg Phe Gln Cys Leu Arg Cys Gly His Glu Phe Lys Pro Glu	
670 675 680	
gag ccc agg atg gga tta gac agt gag gaa ggc tgg agg cct ctg ttc	2112
Glu Pro Arg Met Gly Leu Asp Ser Glu Glu Gly Trp Arg Pro Leu Phe	
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Gln Lys Thr Glu Ser Pro Ala Val Cys Pro Asn Cys Gly Ser Asp His	
705 710 715	
gtg gtt ctc ctc gct gtg tct cgg gga acc ccc aac agg gag cgg aaa	2208
Val Val Leu Leu Ala Val Ser Arg Gly Thr Pro Asn Arg Glu Arg Lys	
720 725 730	
cag gga gag cag tct ctg gct cct tct ccg tct gcc agc cct gtc tgc	2256
Gln Gly Glu Gln Ser Leu Ala Pro Ser Pro Ser Ala Ser Pro Val Cys	
735 740 745	
cac cct cct ggc cat ggt gac cac ctt gac agg gcc aag aac agc cca	2304
His Pro Pro Gly His Gly Asp His Leu Asp Arg Ala Lys Asn Ser Pro	
750 755 760	
cct cag gca ccg agc acc cgt gac cat ggt agt tgg agc ctc agt ccc	2352
Pro Gln Ala Pro Ser Thr Arg Asp His Gly Ser Trp Ser Leu Ser Pro	
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Ala Pro Glu Arg Cys Gly Leu Arg Ser Val Asp His Arg Leu Arg Leu	
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ttc ctg gat gtt gag gtg ttc agc gat gcc cag gag gag ttc cag tgc	2448
Phe Leu Asp Val Glu Val Phe Ser Asp Ala Gln Glu Glu Phe Gln Cys	
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tgc ctc aag gtc cca gtg gca ttg gca ggc cac act ggg gag ttc atg	2496
Cys Leu Lys Val Pro Val Ala Leu Ala Gly His Thr Gly Glu Phe Met	
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tgc ctt gtg gtt gtg tct gac cgc agg ctg tac ctg ttg aag gtg act	2544
Cys Leu Val Val Val Ser Asp Arg Arg Leu Tyr Leu Leu Lys Val Thr	
830 835 840	
ggg gag atg agt gag cct cca gct agc tgg ctg cag ctg acc ctg gct	2592
Gly Glu Met Ser Glu Pro Pro Ala Ser Trp Leu Gln Leu Thr Leu Ala	
845 850 855 860	

gtt ccc ctg cag gat ctg agt ggc ata gag ctg ggc ctg gca ggc cag	2640
Val Pro Leu Gln Asp Leu Ser Gly Ile Glu Leu Gly Leu Ala Gly Gln	
865 870 875	
agc ctg cgg cta gag tgg gca gct ggg gcg ggc cgc tgt gtg ctg ctg	2688
Ser Leu Arg Leu Glu Trp Ala Ala Gly Ala Gly Arg Cys Val Leu Leu	
880 885 890	
ccc cga gat gcc agg cat tgc cgg gcc ttc cta gag gag ctc ctt ggt	2736
Pro Arg Asp Ala Arg His Cys Arg Ala Phe Leu Glu Glu Leu Leu Gly	
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gtc ttg cag tct ctg ccc cct gcc tgg agg aac tgt gtc agt gcc aca	2784
Val Leu Gln Ser Leu Pro Pro Ala Trp Arg Asn Cys Val Ser Ala Thr	
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gag gag gag gtc acc ccc cag cac cgg ctc tgg cca ttg ctg gaa aaa	2832
Glu Glu Glu Val Thr Pro Gln His Arg Leu Trp Pro Leu Leu Glu Lys	
925 930 935 940	
gac tca tcc ttg gag gct cgc cag ttc ttc tac ctt cgg gcg ttc ctg	2880
Asp Ser Ser Leu Glu Ala Arg Gln Phe Phe Tyr Leu Arg Ala Phe Leu	
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gtt gaa ggt gaa gcc tct gtg cag ctg atg ctt ccc tcc acc tgc ctc	2928
Val Glu Gly Glu Ala Ser Val Gln Leu Met Leu Pro Ser Thr Cys Leu	
960 965 970	
gta tcc ctg ttg ctg act ccg tcc acc ctg ttc ctg tta gat gag gat	2976
Val Ser Leu Leu Leu Thr Pro Ser Thr Leu Phe Leu Leu Asp Glu Asp	
975 980 985	
gct gca ggg tcc ccg gca gag ccc tct cct cca gca gca tct ggc gaa	3024
Ala Ala Gly Ser Pro Ala Glu Pro Ser Pro Pro Ala Ala Ser Gly Glu	
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Ala Ser Glu Lys Val Pro Pro Ser Gly Pro Gly Pro Ala Val Arg Val	
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Arg Glu Gln Gln Pro Leu Ser Ser Leu Ser Ser Val Leu Leu Tyr Arg	
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Ser Ala Pro Glu Asp Leu Arg Leu Leu Phe Tyr Asp Glu Val Ser Arg	
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Leu Glu Ser Phe Trp Ala Leu Arg Val Val Cys Gln Glu Gln Leu Thr	
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gcc ctg ctt gcc tgg atc cgg gaa cca tgg gag gag ctg ttt tcc atc	3264
Ala Leu Leu Ala Trp Ile Arg Glu Pro Trp Glu Glu Leu Phe Ser Ile	
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gga ctc cgg aca gtg atc caa gag gcg ctg gcc ctt gac cga	3306

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3351

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<211>1098

<212>PRT

<213> Homo sapiens

<400>354

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35 40 45

Leu Gly Pro Trp Gly Pro Gly Gln Thr Gly Phe Val Ala Leu Pro Ser  
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His Pro Ala Asp Ser Pro Val Ile Leu Gln Leu Gln Phe Leu Phe Asp  
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Val Leu Gln Lys Thr Leu Ser Leu Lys Leu Val His Val Ala Gly Pro  
85 90 95

Gly Pro Thr Gly Pro Ile Lys Ile Phe Pro Phe Lys Ser Leu Arg His  
100 105 110

Leu Glu Leu Arg Gly Val Pro Leu His Cys Leu His Gly Leu Arg Gly  
115 120 125

Ile Tyr Ser Gln Leu Glu Thr Leu Ile Cys Ser Arg Ser Leu Gln Ala  
130 135 140

Leu Glu Glu Leu Leu Ser Ala Cys Gly Gly Asp Phe Cys Ser Ala Leu  
145 150 155 160

Pro Trp Leu Ala Leu Leu Ser Ala Asn Phe Ser Tyr Asn Ala Leu Thr  
165 170 175

Ala Leu Asp Ser Ser Leu Arg Leu Leu Ser Ala Leu Arg Phe Leu Asn  
180 185 190

Leu Ser His Asn Gln Val Gln Asp Cys Gln Gly Phe Leu Met Asp Leu  
195 200 205

Cys Glu Leu His His Leu Asp Ile Ser Tyr Asn Arg Leu His Leu Val  
210 215 220

Pro Arg Met Gly Pro Ser Gly Ala Ala Leu Gly Val Leu Ile Leu Arg  
225 230 235 240

Gly Asn Glu Leu Arg Ser Leu Pro Gly Leu Glu Gln Leu Arg Asn Leu  
 245 250 255  
 Arg His Leu Asp Leu Ala Tyr Asn Leu Leu Glu Gly His Arg Glu Leu  
 260 265 270  
 Ser Pro Leu Trp Leu Leu Ala Glu Leu Arg Lys Leu Tyr Leu Glu Gly  
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 Asn Pro Leu Trp Phe His Pro Glu His Arg Ala Ala Thr Ala Gln Tyr  
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 Leu Ser Pro Arg Ala Arg Asp Ala Ala Thr Gly Phe Leu Leu Asp Gly  
 305 310 315 320  
 Lys Val Leu Ser Leu Thr Asp Phe Gln Gln Thr His Thr Ser Leu Gly  
 325 330 335  
 Leu Ser Pro Met Gly Pro Pro Leu Pro Trp Pro Val Gly Ser Thr Pro  
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 Glu Thr Ser Gly Gly Pro Asp Leu Ser Asp Ser Leu Ser Ser Gly Gly  
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 Val Val Thr Gln Pro Leu Leu His Lys Val Lys Ser Arg Val Arg Val  
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 Pro Thr Thr Ser Ala Pro Ser Ala Pro Pro Ala Ser Ser Gln Gly Pro  
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 Asp Thr Ala Pro Arg Pro Ser Pro Pro Gln Glu Glu Ala Arg Gly Pro  
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 Gln Glu Ser Pro Gln Lys Met Ser Glu Glu Val Arg Ala Glu Pro Gln  
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 Met Val Glu Gln Gly Glu Glu Glu Ala Gly Glu Glu Glu Glu Glu  
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 Gln Asp Gln Lys Glu Val Glu Ala Glu Leu Cys Arg Pro Leu Leu Val  
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Cys Pro Leu Glu Gly Pro Glu Gly Val Arg Gly Arg Glu Cys Phe Leu  
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Arg Val Thr Ser Ala His Leu Phe Glu Val Glu Leu Gln Ala Ala Arg  
565 570 575  
Thr Leu Glu Arg Leu Glu Leu Gln Ser Leu Glu Ala Ala Glu Ile Glu  
580 585 590  
Pro Glu Ala Gln Ala Gln Gly Pro Pro Leu Ala Ala Gln Gly Ser Asp  
595 600 605  
Leu Leu Pro Gly Ala Pro Ile Leu Ser Leu Arg Phe Ser Tyr Ile Cys  
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Pro Asp Arg Gln Leu Arg Arg Tyr Leu Val Leu Glu Pro Asp Ala His  
625 630 635 640  
Ala Ala Val Gln Glu Leu Leu Ala Val Leu Thr Pro Val Thr Asn Val  
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Ala Arg Glu Gln Leu Gly Glu Ala Arg Asp Leu Leu Leu Gly Arg Phe  
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Gln Cys Leu Arg Cys Gly His Glu Phe Lys Pro Glu Glu Pro Arg Met  
675 680 685  
Gly Leu Asp Ser Glu Glu Gly Trp Arg Pro Leu Phe Gln Lys Thr Glu  
690 695 700  
Ser Pro Ala Val Cys Pro Asn Cys Gly Ser Asp His Val Val Leu Leu  
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Ala Val Ser Arg Gly Thr Pro Asn Arg Glu Arg Lys Gln Gly Glu Gln  
725 730 735  
Ser Leu Ala Pro Ser Pro Ser Ala Ser Pro Val Cys His Pro Pro Gly  
740 745 750  
His Gly Asp His Leu Asp Arg Ala Lys Asn Ser Pro Pro Gln Ala Pro  
755 760 765  
Ser Thr Arg Asp His Gly Ser Trp Ser Leu Ser Pro Ala Pro Glu Arg  
770 775 780  
Cys Gly Leu Arg Ser Val Asp His Arg Leu Arg Leu Phe Leu Asp Val  
785 790 795 800  
Glu Val Phe Ser Asp Ala Gln Glu Glu Phe Gln Cys Cys Leu Lys Val  
805 810 815  
Pro Val Ala Leu Ala Gly His Thr Gly Glu Phe Met Cys Leu Val Val  
820 825 830  
Val Ser Asp Arg Arg Leu Tyr Leu Leu Lys Val Thr Gly Glu Met Ser  
835 840 845

Glu Pro Pro Ala Ser Trp Leu Gln Leu Thr Leu Ala Val Pro Leu Gln  
 850 855 860  
 Asp Leu Ser Gly Ile Glu Leu Gly Leu Ala Gly Gln Ser Leu Arg Leu  
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 Glu Trp Ala Ala Gly Ala Gly Arg Cys Val Leu Leu Pro Arg Asp Ala  
 885 890 895  
 Arg His Cys Arg Ala Phe Leu Glu Glu Leu Leu Gly Val Leu Gln Ser  
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 Thr Pro Gln His Arg Leu Trp Pro Leu Leu Glu Lys Asp Ser Ser Leu  
 930 935 940  
 Glu Ala Arg Gln Phe Phe Tyr Leu Arg Ala Phe Leu Val Glu Gly Glu  
 945 950 955 960  
 Ala Ser Val Gln Leu Met Leu Pro Ser Thr Cys Leu Val Ser Leu Leu  
 965 970 975  
 Leu Thr Pro Ser Thr Leu Phe Leu Leu Asp Glu Asp Ala Ala Gly Ser  
 980 985 990  
 Pro Ala Glu Pro Ser Pro Pro Ala Ala Ser Gly Glu Ala Ser Glu Lys  
 995 000 005  
 Val Pro Pro Ser Gly Pro Gly Pro Ala Val Arg Val Arg Glu Gln Gln  
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 Trp Ala Leu Arg Val Val Cys Gln Glu Gln Leu Thr Ala Leu Leu Ala  
 060 065 070  
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<211>3348

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<213> Homo sapiens

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Leu Ala Gly Leu Leu Arg Glu Ser Gly Asp Val Val Leu Ser Gly Cys	
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Ser Thr Leu Ser Leu Leu Thr Pro Thr Leu Gln Gln Leu Asn His Val	
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Phe Glu Leu His Leu Gly Pro Trp Gly Pro Gly Gln Thr Gly Phe Val	
45 50 55 60	
gct ctg ccc tcc cat cct gcc gac tcc cct gtt att ctt cag ctt cag	240
Ala Leu Pro Ser His Pro Ala Asp Ser Pro Val Ile Leu Gln Leu Gln	
65 70 75	
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Phe Leu Phe Asp Val Leu Gln Lys Thr Leu Ser Leu Lys Leu Val His	
80 85 90	
gtt gct ggt cct ggc ccc aca ggg ccc atc aag att ttc ccc ttc aaa	336
Val Ala Gly Pro Gly Pro Thr Gly Pro Ile Lys Ile Phe Pro Phe Lys	
95 100 105	
tcc ctt cgg cac ctg gag ctc cga ggt gtt ccc ctc cac tgt ctg cat	384
Ser Leu Arg His Leu Glu Leu Arg Gly Val Pro Leu His Cys Leu His	
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Gly Leu Arg Gly Ile Tyr Ser Gln Leu Glu Thr Leu Ile Cys Ser Arg	
125 130 135 140	
agc ctc cag gca tta gag gag ctc ctc tca gcc tgc ggc ggc gac ttc	480
Ser Leu Gln Ala Leu Glu Glu Leu Leu Ser Ala Cys Gly Gly Asp Phe	
145 150 155	
tgc tct gcc ctc cct tgg ctg gct ctg ctt tct gcc aac ttc agc tac	528
Cys Ser Ala Leu Pro Trp Leu Ala Leu Leu Ser Ala Asn Phe Ser Tyr	
160 165 170	
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Asn Ala Leu Thr Ala Leu Asp Ser Ser Leu Arg Leu Leu Ser Ala Leu	
175 180 185	
cgt ttc ttg aac cta agc cac aat caa gtc cag gac tgt cag gga ttc	624
Arg Phe Leu Asn Leu Ser His Asn Gln Val Gln Asp Cys Gln Gly Phe	
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ctg atg gat ttg tgt gag ctc cac cat ctg gac atc tcc tat aat cgc	672
Leu Met Asp Leu Cys Glu Leu His His Leu Asp Ile Ser Tyr Asn Arg	
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Leu Ile Leu Arg Gly Asn Glu Leu Arg Ser Leu Pro Gly Leu Glu Gln	
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Leu Arg Asn Leu Arg His Leu Asp Leu Ala Tyr Asn Leu Leu Glu Gly	
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His Arg Glu Leu Ser Pro Leu Trp Leu Leu Ala Glu Leu Arg Lys Leu	
270 275 280	
tac ctg gag ggg aac cct ctt tgg ttc cac cct gag cac cga gca gcc	912
Tyr Leu Glu Gly Asn Pro Leu Trp Phe His Pro Glu His Arg Ala Ala	
285 290 295 300	
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Thr Ala Gln Tyr Leu Ser Pro Arg Ala Arg Asp Ala Ala Thr Gly Phe	
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Leu Leu Asp Gly Lys Val Leu Ser Leu Thr Asp Phe Gln Gln Thr His	
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Ser Ser Gly Gly Val Val Thr Gln Pro Leu Leu His Lys Val Lys Ser	
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385 390 395	
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Gln His Pro Glu Leu Glu Leu Met Ser Ser Phe Arg Glu Arg Phe Gly	
415 420 425	
cgc aac tgg ctg cag tac agg agt cac ctg gag ccc tcc gga aac cct	1344
Arg Asn Trp Leu Gln Tyr Arg Ser His Leu Glu Pro Ser Gly Asn Pro	
430 435 440	
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Ala	Arg	Gly	Pro	Gln	Glu	Ser	Pro	Gln	Lys	Met	Ser	Glu	Glu	Val	Arg	
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Glu	Glu	Gly	Glu	Met	Val	Glu	Gln	Gly	Glu	Glu	Glu	Ala	Gly	Glu	Glu	
	510					515					520					
gaa	gaa	gag	gag	cag	gac	cag	aag	gaa	gtg	gaa	gcg	gaa	ctc	tgt	cgc	1632
Glu	Glu	Glu	Glu	Gln	Asp	Gln	Lys	Glu	Val	Glu	Ala	Glu	Leu	Cys	Arg	
525				530				535						540		
ccc	ttg	ttg	gtg	tgt	ccc	ctg	gag	ggg	cct	gag	ggc	gta	cgg	ggc	agg	1680
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Gln	Ala	Ala	Arg	Thr	Leu	Glu	Arg	Leu	Glu	Leu	Gln	Ser	Leu	Glu	Ala	
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Ala	Glu	Ile	Glu	Pro	Glu	Ala	Gln	Ala	Gln	Arg	Ser	Pro	Arg	Pro	Thr	
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Gly	Ser	Asp	Leu	Leu	Pro	Gly	Ala	Pro	Ile	Leu	Ser	Leu	Arg	Phe	Ser	
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tac	atc	tgc	cct	gac	cgg	cag	ttg	cgt	cgc	tat	ttg	gtg	ctg	gag	cct	1920
Tyr	Ile	Cys	Pro	Asp	Arg	Gln	Leu	Arg	Arg	Tyr	Leu	Val	Leu	Glu	Pro	
			625					630					635			
gat	gcc	cac	gca	gct	gtc	cag	gag	ctg	ctt	gcc	gtg	ttg	acc	cca	gtc	1968
Asp	Ala	His	Ala	Ala	Val	Gln	Glu	Leu	Leu	Ala	Val	Leu	Thr	Pro	Val	
			640					645				650				
acc	aat	gtg	gct	cgg	gaa	cag	ctt	ggg	gag	gcc	agg	gac	ctc	ctg	ctg	2016
Thr	Asn	Val	Ala	Arg	Glu	Gln	Leu	Gly	Glu	Ala	Arg	Asp	Leu	Leu	Leu	
		655					660				665					
ggg	aga	ttc	cag	tgt	cta	cgc	tgt	ggc	cat	gag	ttc	aag	cca	gag	gag	2064
Gly	Arg	Phe	Gln	Cys	Leu	Arg	Cys	Gly	His	Glu	Phe	Lys	Pro	Glu	Glu	

670	675	680	
ccc agg atg gga tta gac agt gag gaa ggc tgg agg cct ctg ttc caa Pro Arg Met Gly Leu Asp Ser Glu Glu Gly Trp Arg Pro Leu Phe Gln 685	690	695	700 2112
aag aca gaa tct cct gct gtg tgt cct aac tgt ggt agt gac cac gtg Lys Thr Glu Ser Pro Ala Val Cys Pro Asn Cys Gly Ser Asp His Val 705	710	715	2160
gtt ctc ctc gct gtg tct cgg gga acc ccc aac agg gag cgg aaa cag Val Leu Leu Ala Val Ser Arg Gly Thr Pro Asn Arg Glu Arg Lys Gln 720	725	730	2208
gga gag cag tct ctg gct cct tct ccg tct gcc agc cct gtc tgc cac Gly Glu Gln Ser Leu Ala Pro Ser Pro Ser Ala Ser Pro Val Cys His 735	740	745	2256
cct cct ggc cat ggt gac cac ctt gac agg gcc aag aac agc cca cct Pro Pro Gly His Gly Asp His Leu Asp Arg Ala Lys Asn Ser Pro Pro 750	755	760	2304
cag gca ccg agc acc cgt gac cat ggt agt tgg agc ctc agt ccc gcc Gln Ala Pro Ser Thr Arg Asp His Gly Ser Trp Ser Leu Ser Pro Ala 765	770	775	780 2352
cct gag cgc tgt ggc ctc cgc tct gtg gac cac cga ctc cgg ctc ttc Pro Glu Arg Cys Gly Leu Arg Ser Val Asp His Arg Leu Arg Leu Phe 785	790	795	2400
ctg gat gtt gag gtg ttc agc gat gcc cag gag gag ttc cag tgc tgc Leu Asp Val Glu Val Phe Ser Asp Ala Gln Glu Glu Phe Gln Cys Cys 800	805	810	2448
ctc aag gtc cca gtg gca ttg gca ggc cac act ggg gag ttc atg tgc Leu Lys Val Pro Val Ala Leu Ala Gly His Thr Gly Glu Phe Met Cys 815	820	825	2496
ctt gtg gtt gtg tct gac cgc agg ctg tac ctg ttg aag gtg act ggg Leu Val Val Val Ser Asp Arg Arg Leu Tyr Leu Leu Lys Val Thr Gly 830	835	840	2544
gag atg agt gag cct cca gct agc tgg ctg cag ctg acc ctg gct gtt Glu Met Ser Glu Pro Pro Ala Ser Trp Leu Gln Leu Thr Leu Ala Val 845	850	855	860 2592
ccc ctg cag gat ctg agt ggc ata gag ctg ggc ctg gca ggc cag agc Pro Leu Gln Asp Leu Ser Gly Ile Glu Leu Gly Leu Ala Gly Gln Ser 865	870	875	2640
ctg cgg cta gag tgg gca gct ggg gcg ggc cgc tgt gtg ctg ctg ccc Leu Arg Leu Glu Trp Ala Ala Gly Ala Gly Arg Cys Val Leu Leu Pro 880	885	890	2688
cga gat gcc agg cat tgc cgg gcc ttc cta gag gag ctc ctt ggt gtc Arg Asp Ala Arg His Cys Arg Ala Phe Leu Glu Glu Leu Leu Gly Val 895	900	905	2736

ttg cag tct ctg ccc cct gcc tgg agg aac tgt gtc agt gcc aca gag Leu Gln Ser Leu Pro Pro Ala Trp Arg Asn Cys Val Ser Ala Thr Glu 910 915 920	2784
gag gag gtc acc ccc cag cac cgg ctc tgg cca ttg ctg gaa aaa gac Glu Glu Val Thr Pro Gln His Arg Leu Trp Pro Leu Leu Glu Lys Asp 925 930 935 940	2832
tca tcc ttg gag gct cgc cag ttc ttc tac ctt cgg gcg ttc ctg gtt Ser Ser Leu Glu Ala Arg Gln Phe Phe Tyr Leu Arg Ala Phe Leu Val 945 950 955	2880
gaa ggt gaa gcc tct gtg cag ctg atg ctt ccc tcc acc tgc ctc gta Glu Gly Glu Ala Ser Val Gln Leu Met Leu Pro Ser Thr Cys Leu Val 960 965 970	2928
tcc ctg ttg ctg act ccg tcc acc ctg ttc ctg tta gat gag gat gct Ser Leu Leu Leu Thr Pro Ser Thr Leu Phe Leu Leu Asp Glu Asp Ala 975 980 985	2976
gca ggg tcc ccg gca gag ccc tct cct cca gca gca tct ggc gaa gcc Ala Gly Ser Pro Ala Glu Pro Ser Pro Pro Ala Ala Ser Gly Glu Ala 990 995 000	3024
tct gag aag gtg cct ccc tcg ggg ccg ggc cct gct gtg cgt gtc agg Ser Glu Lys Val Pro Pro Ser Gly Pro Gly Pro Ala Val Arg Val Arg 005 010 015 020	3072
gag cag cag cca ctc agc agc ctg agc tcc gtg ctg ctc tac cgc tca Glu Gln Gln Pro Leu Ser Ser Leu Ser Ser Val Leu Leu Tyr Arg Ser 025 030 035	3120
gcc cct gag gac ttg cgg ctg ctc ttc tac gat gag gtg tcc cgg ctg Ala Pro Glu Asp Leu Arg Leu Leu Phe Tyr Asp Glu Val Ser Arg Leu 040 045 050	3168
gag agc ttt tgg gca ctc cgt gtg gtg tgt cag gag cag ctg aca gcc Glu Ser Phe Trp Ala Leu Arg Val Val Cys Gln Glu Gln Leu Thr Ala 055 060 065	3216
ctg ctt gcc tgg atc cgg gaa cca tgg gag gag ctg ttt tcc atc gga Leu Leu Ala Trp Ile Arg Glu Pro Trp Glu Glu Leu Phe Ser Ile Gly 070 075 080	3264
ctc cgg aca gtg atc caa gag gcg ctg gcc ctt gac cga tgagggtccc Leu Arg Thr Val Ile Gln Glu Ala Leu Ala Leu Asp Arg 085 090 095	3313
acgctgacct tggccctgac ctcaggagcc acgct	3348

<210>356  
 <211>1097  
 <212>PRT  
 <213> Homo sapiens

<400>356

Met Thr Thr Ala Gln Arg Asp Ser Leu Leu Trp Lys Leu Ala Gly Leu  
1 5 10 15

Leu Arg Glu Ser Gly Asp Val Val Leu Ser Gly Cys Ser Thr Leu Ser  
20 25 30

Leu Leu Thr Pro Thr Leu Gln Gln Leu Asn His Val Phe Glu Leu His  
35 40 45

Leu Gly Pro Trp Gly Pro Gly Gln Thr Gly Phe Val Ala Leu Pro Ser  
50 55 60

His Pro Ala Asp Ser Pro Val Ile Leu Gln Leu Gln Phe Leu Phe Asp  
65 70 75 80

Val Leu Gln Lys Thr Leu Ser Leu Lys Leu Val His Val Ala Gly Pro  
85 90 95

Gly Pro Thr Gly Pro Ile Lys Ile Phe Pro Phe Lys Ser Leu Arg His  
100 105 110

Leu Glu Leu Arg Gly Val Pro Leu His Cys Leu His Gly Leu Arg Gly  
115 120 125

Ile Tyr Ser Gln Leu Glu Thr Leu Ile Cys Ser Arg Ser Leu Gln Ala  
130 135 140

Leu Glu Glu Leu Leu Ser Ala Cys Gly Gly Asp Phe Cys Ser Ala Leu  
145 150 155 160

Pro Trp Leu Ala Leu Leu Ser Ala Asn Phe Ser Tyr Asn Ala Leu Thr  
165 170 175

Ala Leu Asp Ser Ser Leu Arg Leu Leu Ser Ala Leu Arg Phe Leu Asn  
180 185 190

Leu Ser His Asn Gln Val Gln Asp Cys Gln Gly Phe Leu Met Asp Leu  
195 200 205

Cys Glu Leu His His Leu Asp Ile Ser Tyr Asn Arg Leu His Leu Val  
210 215 220

Pro Arg Met Gly Pro Ser Gly Ala Ala Leu Gly Val Leu Ile Leu Arg  
225 230 235 240

Gly Asn Glu Leu Arg Ser Leu Pro Gly Leu Glu Gln Leu Arg Asn Leu  
245 250 255

Arg His Leu Asp Leu Ala Tyr Asn Leu Leu Glu Gly His Arg Glu Leu  
260 265 270

Ser Pro Leu Trp Leu Leu Ala Glu Leu Arg Lys Leu Tyr Leu Glu Gly  
275 280 285

Asn Pro Leu Trp Phe His Pro Glu His Arg Ala Ala Thr Ala Gln Tyr

290	295	300
Leu Ser Pro Arg Ala Arg Asp Ala Ala Thr Gly Phe Leu Leu Asp Gly 305 310 315 320		
Lys Val Leu Ser Leu Thr Asp Phe Gln Gln Thr His Thr Ser Leu Gly 325 330 335		
Leu Ser Pro Met Gly Pro Pro Leu Pro Trp Pro Val Gly Ser Thr Pro 340 345 350		
Glu Thr Ser Gly Gly Pro Asp Leu Ser Asp Ser Leu Ser Ser Gly Gly 355 360 365		
Val Val Thr Gln Pro Leu Leu His Lys Val Lys Ser Arg Val Arg Val 370 375 380		
Arg Arg Ala Ser Ile Ser Glu Pro Ser Asp Thr Asp Pro Glu Pro Arg 385 390 395 400		
Thr Leu Asn Pro Ser Pro Ala Gly Trp Phe Val Gln Gln His Pro Glu 405 410 415		
Leu Glu Leu Met Ser Ser Phe Arg Glu Arg Phe Gly Arg Asn Trp Leu 420 425 430		
Gln Tyr Arg Ser His Leu Glu Pro Ser Gly Asn Pro Leu Pro Ala Thr 435 440 445		
Pro Thr Thr Ser Ala Pro Ser Ala Pro Pro Ala Ser Ser Gln Gly Pro 450 455 460		
Asp Thr Ala Pro Arg Pro Ser Pro Pro Gln Glu Glu Ala Arg Gly Pro 465 470 475 480		
Gln Glu Ser Pro Gln Lys Met Ser Glu Glu Val Arg Ala Glu Pro Gln 485 490 495		
Glu Glu Glu Glu Glu Lys Glu Gly Lys Glu Glu Lys Glu Glu Gly Glu 500 505 510		
Met Val Glu Gln Gly Glu Glu Glu Ala Gly Glu Glu Glu Glu Glu 515 520 525		
Gln Asp Gln Lys Glu Val Glu Ala Glu Leu Cys Arg Pro Leu Leu Val 530 535 540		
Cys Pro Leu Glu Gly Pro Glu Gly Val Arg Gly Arg Glu Cys Phe Leu 545 550 555 560		
Arg Val Thr Ser Ala His Leu Phe Glu Val Glu Leu Gln Ala Ala Arg 565 570 575		
Thr Leu Glu Arg Leu Glu Leu Gln Ser Leu Glu Ala Ala Glu Ile Glu 580 585 590		
Pro Glu Ala Gln Ala Gln Arg Ser Pro Arg Pro Thr Gly Ser Asp Leu		

595					600					605					
Leu	Pro	Gly	Ala	Pro	Ile	Leu	Ser	Leu	Arg	Phe	Ser	Tyr	Ile	Cys	Pro
610					615					620					
Asp	Arg	Gln	Leu	Arg	Arg	Tyr	Leu	Val	Leu	Glu	Pro	Asp	Ala	His	Ala
625					630					635					640
Ala	Val	Gln	Glu	Leu	Leu	Ala	Val	Leu	Thr	Pro	Val	Thr	Asn	Val	Ala
				645					650					655	
Arg	Glu	Gln	Leu	Gly	Glu	Ala	Arg	Asp	Leu	Leu	Leu	Gly	Arg	Phe	Gln
				660					665					670	
Cys	Leu	Arg	Cys	Gly	His	Glu	Phe	Lys	Pro	Glu	Glu	Pro	Arg	Met	Gly
				675					680					685	
Leu	Asp	Ser	Glu	Glu	Gly	Trp	Arg	Pro	Leu	Phe	Gln	Lys	Thr	Glu	Ser
				690					695					700	
Pro	Ala	Val	Cys	Pro	Asn	Cys	Gly	Ser	Asp	His	Val	Val	Leu	Leu	Ala
				710										720	
Val	Ser	Arg	Gly	Thr	Pro	Asn	Arg	Glu	Arg	Lys	Gln	Gly	Glu	Gln	Ser
				725					730					735	
Leu	Ala	Pro	Ser	Pro	Ser	Ala	Ser	Pro	Val	Cys	His	Pro	Pro	Gly	His
				740					745					750	
Gly	Asp	His	Leu	Asp	Arg	Ala	Lys	Asn	Ser	Pro	Pro	Gln	Ala	Pro	Ser
				755					760					765	
Thr	Arg	Asp	His	Gly	Ser	Trp	Ser	Leu	Ser	Pro	Ala	Pro	Glu	Arg	Cys
				770					775					780	
Gly	Leu	Arg	Ser	Val	Asp	His	Arg	Leu	Arg	Leu	Phe	Leu	Asp	Val	Glu
				785					790					795	800
Val	Phe	Ser	Asp	Ala	Gln	Glu	Glu	Phe	Gln	Cys	Cys	Leu	Lys	Val	Pro
				805					810					815	
Val	Ala	Leu	Ala	Gly	His	Thr	Gly	Glu	Phe	Met	Cys	Leu	Val	Val	Val
				820					825					830	
Ser	Asp	Arg	Arg	Leu	Tyr	Leu	Leu	Lys	Val	Thr	Gly	Glu	Met	Ser	Glu
				835					840					845	
Pro	Pro	Ala	Ser	Trp	Leu	Gln	Leu	Thr	Leu	Ala	Val	Pro	Leu	Gln	Asp
				850					855					860	
Leu	Ser	Gly	Ile	Glu	Leu	Gly	Leu	Ala	Gly	Gln	Ser	Leu	Arg	Leu	Glu
				865					870					875	880
Trp	Ala	Ala	Gly	Ala	Gly	Arg	Cys	Val	Leu	Leu	Pro	Arg	Asp	Ala	Arg
				885					890					895	
His	Cys	Arg	Ala	Phe	Leu	Glu	Glu	Leu	Leu	Gly	Val	Leu	Gln	Ser	Leu



900					905					910					
Pro	Pro	Ala	Trp	Arg	Asn	Cys	Val	Ser	Ala	Thr	Glu	Glu	Glu	Val	Thr
		915					920					925			
Pro	Gln	His	Arg	Leu	Trp	Pro	Leu	Leu	Glu	Lys	Asp	Ser	Ser	Leu	Glu
		930					935					940			
Ala	Arg	Gln	Phe	Phe	Tyr	Leu	Arg	Ala	Phe	Leu	Val	Glu	Gly	Glu	Ala
		945					950					955			960
Ser	Val	Gln	Leu	Met	Leu	Pro	Ser	Thr	Cys	Leu	Val	Ser	Leu	Leu	Leu
				965					970					975	
Thr	Pro	Ser	Thr	Leu	Phe	Leu	Leu	Asp	Glu	Asp	Ala	Ala	Gly	Ser	Pro
			980					985					990		
Ala	Glu	Pro	Ser	Pro	Pro	Ala	Ala	Ser	Gly	Glu	Ala	Ser	Glu	Lys	Val
		995					000					005			
Pro	Pro	Ser	Gly	Pro	Gly	Pro	Ala	Val	Arg	Val	Arg	Glu	Gln	Gln	Pro
		010					015					020			
Leu	Ser	Ser	Leu	Ser	Ser	Val	Leu	Leu	Tyr	Arg	Ser	Ala	Pro	Glu	Asp
		025					030					035			040
Leu	Arg	Leu	Leu	Phe	Tyr	Asp	Glu	Val	Ser	Arg	Leu	Glu	Ser	Phe	Trp
				045					050					055	
Ala	Leu	Arg	Val	Val	Cys	Gln	Glu	Gln	Leu	Thr	Ala	Leu	Leu	Ala	Trp
			060					065						070	
Ile	Arg	Glu	Pro	Trp	Glu	Glu	Leu	Phe	Ser	Ile	Gly	Leu	Arg	Thr	Val
		075					080					085			
Ile	Gln	Glu	Ala	Leu	Ala	Leu	Asp	Arg							
		090					095								

<210>357

<211>22

<212> DNA

<213> Artificial Sequence

<220>

<221> Description of Artificial Sequence: Forward Primer

<400>357

cagaatgaac caaggagact ca

22

<210>358

<211>26

<212> DNA

<213> Artificial Sequence

<220>

<221> Description of Artificial Sequence: probe

<400>358  
ctactccgca tgcggcagaa gacatt 26

<210>359  
<211>22

<212> DNA  
<213> Artificial Sequence

<220>  
<221> Description of Artificial Sequence: Reverse Primer

<400>359  
cacatccatc tgtcatctcc tt 22

<210>360  
<211>22

<212> DNA  
<213> Artificial Sequence

<220>  
<221> Description of Artificial Sequence: Forward Primer

<400>360  
ttcttctgcg gagtcaaagt ag 22

<210>361  
<211>26

<212> DNA  
<213> Artificial Sequence

<220>  
<221> Description of Artificial Sequence: probe

<400>361  
ttggtcttct tggtactgac cctgca 26

<210>362  
<211>22

<212> DNA  
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<220>  
<221> Description of Artificial Sequence: Reverse Primer

<400>362  
tcattctgct tatcaacggt tc 22

<210>363  
<211>20

<212> DNA

<213> Artificial Sequence

<220>  
 <221> Description of Artificial Sequence: Forward Primer

<400>363  
 gaacattcct gtccactgga 20

<210>364  
 <211>26

<212> DNA  
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<220>  
 <221> Description of Artificial Sequence: probe

<400>364  
 attttcaagc gatggatacc ctaaaa 26

<210>365  
 <211>20

<212> DNA  
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<220>  
 <221> Description of Artificial Sequence: Reverse Primer

<400>365  
 cacttctacg gagggctttt 20

<210>366  
 <211>22

<212> DNA  
 <213> Artificial Sequence

<220>  
 <221> Description of Artificial Sequence: Forward Primer

<400>366  
 tggctttcca gttagtctcc tt 22

<210>367  
 <211>28

<212> DNA  
 <213> Artificial Sequence

<220>  
 <221> Description of Artificial Sequence: probe

<400>367  
 cacctacatc tggatcatat tgaaacca 28

<210>368

<211>22  
  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <221> Description of Artificial Sequence: Reverse Primer  
  
 <400>368 22  
 ttgatgtag aagcagcaca aa  
  
 <210>369  
 <211>22  
  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <221> Description of Artificial Sequence: Forward Primer  
  
 <400>369 22  
 gtcctggctt tccagtagt ct  
  
 <210>370  
 <211>29  
  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <221> Description of Artificial Sequence: probe  
  
 <400>370 29  
 tcacctacat ctggatcata ttgaaacca  
  
 <210>371  
 <211>22  
  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <221> Description of Artificial Sequence: Reverse Primer  
  
 <400>371 22  
 ttgatgtag aagcagcaca aa  
  
 <210>372  
 <211>22  
  
 <212> DNA  
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 <220>  
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 <400>372

gtcctggctt tccagttagt ct 22

<210>373  
<211>29

<212> DNA  
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<220>  
<221> Description of Artificial Sequence: probe

<400>373  
tcacctacat ctggatcata ttgaaacca 29

<210>374  
<211>22

<212> DNA  
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<220>  
<221> Description of Artificial Sequence: Reverse Primer

<400>374  
ttgatgtag aagcagcaca aa 22

<210>375  
<211>22

<212> DNA  
<213> Artificial Sequence

<220>  
<221> Description of Artificial Sequence: Forward Primer

<400>375  
atctgggtgc ctgatatctt tt 22

<210>376  
<211>30

<212> DNA  
<213> Artificial Sequence

<220>  
<221> Description of Artificial Sequence: probe

<400>376  
tgtccactct aaaagatcct tcatccatga 30

<210>377  
<211>22

<212> DNA  
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<220>

<221> Description of Artificial Sequence: Reverse Primer

<400>377  
cgcagcatga tattctccat ag 22

<210>378  
<211>22

<212> DNA  
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<220>  
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<400>378  
gtcctggcctt tccagttagt ct 22

<210>379  
<211>29

<212> DNA  
<213> Artificial Sequence

<220>  
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<400>379  
tcacctacat ctggatcata ttgaaacca 29

<210>380  
<211>22

<212> DNA  
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<220>  
<221> Description of Artificial Sequence: Reverse Primer

<400>380  
ttgatgtag aagcagcaca aa 22

<210>381  
<211>19

<212> DNA  
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<220>  
<221> Description of Artificial Sequence: Forward Primer

<400>381  
gtcgggcagg acctttact 19

<210>382  
<211>26

<212> DNA

<213> Artificial Sequence

<220>  
 <221> Description of Artificial Sequence: probe

<400>382  
 tcctacagct aattctgcag ggcaca 26

<210>383  
 <211>22

<212> DNA  
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<220>  
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<400>383  
 tacgctttac tcccgtaagt ca 22

<210>384  
 <211>21

<212> DNA  
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<220>  
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<400>384  
 gtcaaggtgg ccctaaaatt c 21

<210>385  
 <211>26

<212> DNA  
 <213> Artificial Sequence

<220>  
 <221> Description of Artificial Sequence: probe

<400>385  
 ccaggacctc atctccaagc tgctta 26

<210>386  
 <211>19

<212> DNA  
 <213> Artificial Sequence

<220>  
 <221> Description of Artificial Sequence: Reverse Primer

<400>386  
 agccgttctg aggggttat 19

<210>387

<211>26

<212> DNA  
<213> Artificial Sequence

<220>  
<221> Description of Artificial Sequence: Forward Primer

<400>387  
atatcctgaa gctacaacag ttagct 26

<210>388  
<211>29

<212> DNA  
<213> Artificial Sequence

<220>  
<221> Description of Artificial Sequence: probe

<400>388  
tggcaacaaa tgcattattc catattacg 29

<210>389  
<211>20

<212> DNA  
<213> Artificial Sequence

<220>  
<221> Description of Artificial Sequence: Reverse Primer

<400>389  
gagtgaactc gctggatcatg 20

<210>390  
<211>20

<212> DNA  
<213> Artificial Sequence

<220>  
<221> Description of Artificial Sequence: Forward Primer

<400>390  
atctgctgca agtgctatgc 20

<210>391  
<211>26

<212> DNA  
<213> Artificial Sequence

<220>  
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<400>391



cggtgctatc aactgccaca agaaga 26

<210>392  
<211>20

<212> DNA  
<213> Artificial Sequence

<220>  
<221> Description of Artificial Sequence: Reverse Primer

<400>392  
tgaccttctt cctggggtac 20

<210>393  
<211>22

<212> DNA  
<213> Artificial Sequence

<220>  
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<400>393  
gacccctcact gcaacattct tt 22

<210>394  
<211>26

<212> DNA  
<213> Artificial Sequence

<220>  
<221> Description of Artificial Sequence: probe

<400>394  
aatcccttac cgcgacgagt agaaca 26

<210>395  
<211>22

<212> DNA  
<213> Artificial Sequence

<220>  
<221> Description of Artificial Sequence: Reverse Primer

<400>395  
gcactgccat ctaaaccata ga 22

<210>396  
<211>22

<212> DNA  
<213> Artificial Sequence

<220>

<221> Description of Artificial Sequence: Forward Primer

<400>396  
 tttgatacgg caattgtgaa tt 22

<210>397  
 <211>26

<212> DNA  
 <213> Artificial Sequence

<220>  
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<400>397  
 ccgatcttga taaagcctat caggaa 26

<210>398  
 <211>22

<212> DNA  
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<220>  
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<400>398  
 cccactgagg ttcagtatca ag 22

<210>399  
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<212> DNA  
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<220>  
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<400>399  
 aagaagtgga ctggagtcag aa 22

<210>400  
 <211>26

<212> DNA  
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<220>  
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<400>400  
 tacattttct ccagccattt ccccaa 26

<210>401  
 <211>21

<212> DNA

<213> Artificial Sequence

<220>  
 <221> Description of Artificial Sequence: Reverse Primer

<400>401  
 agcagtacaa agaggcctca a 21

<210>402  
 <211>22

<212> DNA  
 <213> Artificial Sequence

<220>  
 <221> Description of Artificial Sequence: Forward Primer

<400>402  
 ctaatgctgg atttgtccat ca 22

<210>403  
 <211>28

<212> DNA  
 <213> Artificial Sequence

<220>  
 <221> Description of Artificial Sequence: probe

<400>403  
 tcaggaatat gaagccatct acctagca 28

<210>404  
 <211>22

<212> DNA  
 <213> Artificial Sequence

<220>  
 <221> Description of Artificial Sequence: Reverse Primer

<400>404  
 tggagtgggtg acatcatctg ta 22

<210>405  
 <211>22

<212> DNA  
 <213> Artificial Sequence

<220>  
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<400>405  
 atttgtccat caacttcagg aa 22

<210>406

<211>28  
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 tgaagccatc tacctagcaa aattaaca 28  
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 <400>407  
 tggagtgggtg acatcatctg ta 22  
 <210>408  
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 <221> Description of Artificial Sequence: Forward Primer  
 <400>408  
 ctaatgctgg atttgtccat ca 22  
 <210>409  
 <211>28  
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